WESTERN INDUSTRY

• In the modernizing of railroad transportation in the West, diesel electric freight locomotives have played an important part.

Twenty-Five Cents VOLUME X NUMBER 9 September, 1945

V10-9 SEP 45 XUM

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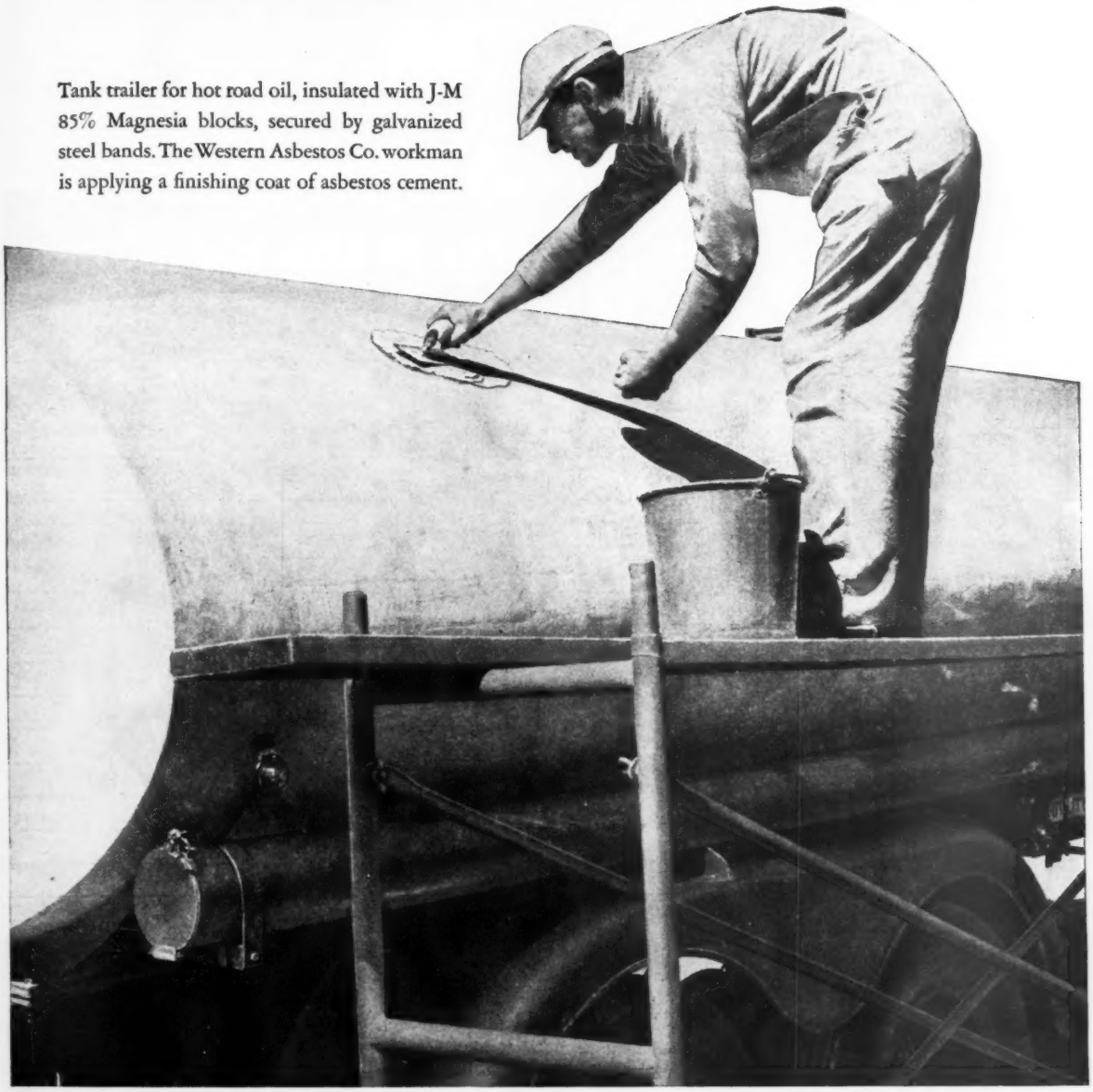

THE ENGINEERING AND APPLYING of insulation on equipment for the control of heat or cold is a custom tailoring job. To perform a thorough, speedy and economical installation it requires tailor-made materials, extensive engineering and field experience, and craftsmanship in application.

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EDITORIAL COMMENT

The West Goes Ahead

BECAUSE the wartime growth of the West was in reality only an acceleration of the steady development that had been in progress for many years, ending of the war did not bring down instant chaos, as some prophets of gloom expected, or hoped.

Instead, resumption of peace-time activity already is absorbing much of the peak load of displaced employment from shipyards and aircraft plants, and as business gains momentum will take care of even more of it. In fact, there is good reason to expect that there will be a tight labor market for a long time to come in many Western areas, while other spots will work themselves out of their difficulties.

Not that there are no problems ahead. Industry cannot afford to retreat within itself and make no organized effort to place the returning veterans immediately into civilian occupations. If it ignores the problem the effect can easily be a disastrous situation as bad or even worse than the riots in eastern cities in 1932.

Another problem is that of a Western policy in regard to the disposal of war plants. Washington had not formulated a policy at this writing, and neither has the West, although the Western States Council, the only over-all planning or fact-finding organization in the West, has made a few steps in this direction.

While it is an easy matter to blame the Western States Council for being an inadequate organization, the fact remains that it is the only body of its kind in existence. Logic would seem to dictate that industry should rush to make use of its facilities in order to get going without delay on this problem of disposal of war plants.

A third matter which should be attended to without delay is the establishment of a branch of the Office of War Mobilization and reconversion for the eleven Western states. All Western senators and congressmen should be called upon to put this through. Otherwise the West's wants and needs will be swallowed up in the national picture and we will be in the same situation as if there had been no WPB or WMC offices where regional matters could get prompt attention.

Helping the Veterans

A VETERAN and his money are soon parted, in far too many cases. Scores of instances are already coming to light of veterans falling into the clutches of swindlers of the worst sort. The field is fertile today for such crooks. There are also plenty of examples of foolish investments. In either event, not only has the veteran suffered hardship, but also the lost money has been diverted from legitimate channels of trade.

In self-defense employers generally should make an active effort to give wise counsel to every veteran applying for employment, whether the employer has a job for him or not. He can warn against the activity of swindlers and caution the veteran against venturing into business for himself without adequate financing or in unfamiliar fields. To back up his advice there is printed literature available; the Better Business Bureau of San Francisco, for example, has an excellent pamphlet available to employers which warns veterans against financial pitfalls.

It should be remembered that returning veterans have been out of touch for a long time with ordinary business procedures, and that life in the armed services tends to take away financial responsibility and alertness against dishonesty and foolhardiness.

WESTERN INDUSTRY

CONTENTS FOR SEPTEMBER, 1945

Editorial Comment	5
Spotlight on the News	39
Atomic Project as a Factor in Western Industrialism	41-44
West Rides Steady Keel Under Impact of Peace	45-46
RFC Fontana Plan Presages All Business, No Sentiment	48-49
Western Labor Leader and Industrialist Switch Roles	50-51
Magnesium Can Do as Well in Peace as It has Done in War	52-53
West Uses Axis Patents	54
Western Executives of Middle Group Should Be Better Paid	55
Workmen's Lives Depend on Crane Operator's Efficiency	58-59
Washington Correspondence	60-62
Southern California Squawks to WPB's Krug	62
Maintenance Notes	64
Westerners at Work	68-69
Regional Reviews: Sierras to the Sea	72-73
Olympics to the Coeur d'Alenes	75-76
Tehachepi to Tijuana	77-79
Columbia Empire	80-81
The Wasatch Front	82-83
Continental Divide	84-85
Labor and the Industrial West	87-88
Efficiency Kinks	90
In Our Mail Box	91
The Western Outlook: News and Statistics	92-93
The West On Its Way	94-102
Pamphlet Review	103-104
Western Trade Winds	106
The Showcase	107-108
Yours for the Asking	109
Advertisers' Index	110

OUR COVER PICTURE

• Railroads that played such a mighty part in the building of the West were largely responsible for the West's tremendous role in winning the recent war. No less great will be their part in the peace. An important factor in their success lies in the use of Diesel-electric locomotives of immense horsepower such as these of the Santa Fe Railroad.

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A. C. PRENDERGAST, *Editor*

S. S. MORRILL, *Assistant Editor*

Washington Office: ARNOLD KRUCKMAN, Associate Editor, 1120 Vermont Ave., N.W., Washington 5, Telephone: DIstrict 8822.

Los Angeles Office: JACK O. HODGES, Southern California Editor and District Manager, 479 South Holt Avenue, Los Angeles 36, Telephone: BRadshaw 2-3935.

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Illustration shows over 400 gears for B-29's going into an electric furnace for carburizing. The temperature is accurately maintained by automatic thermostatic controls during the treatment insuring uniform carburizing.

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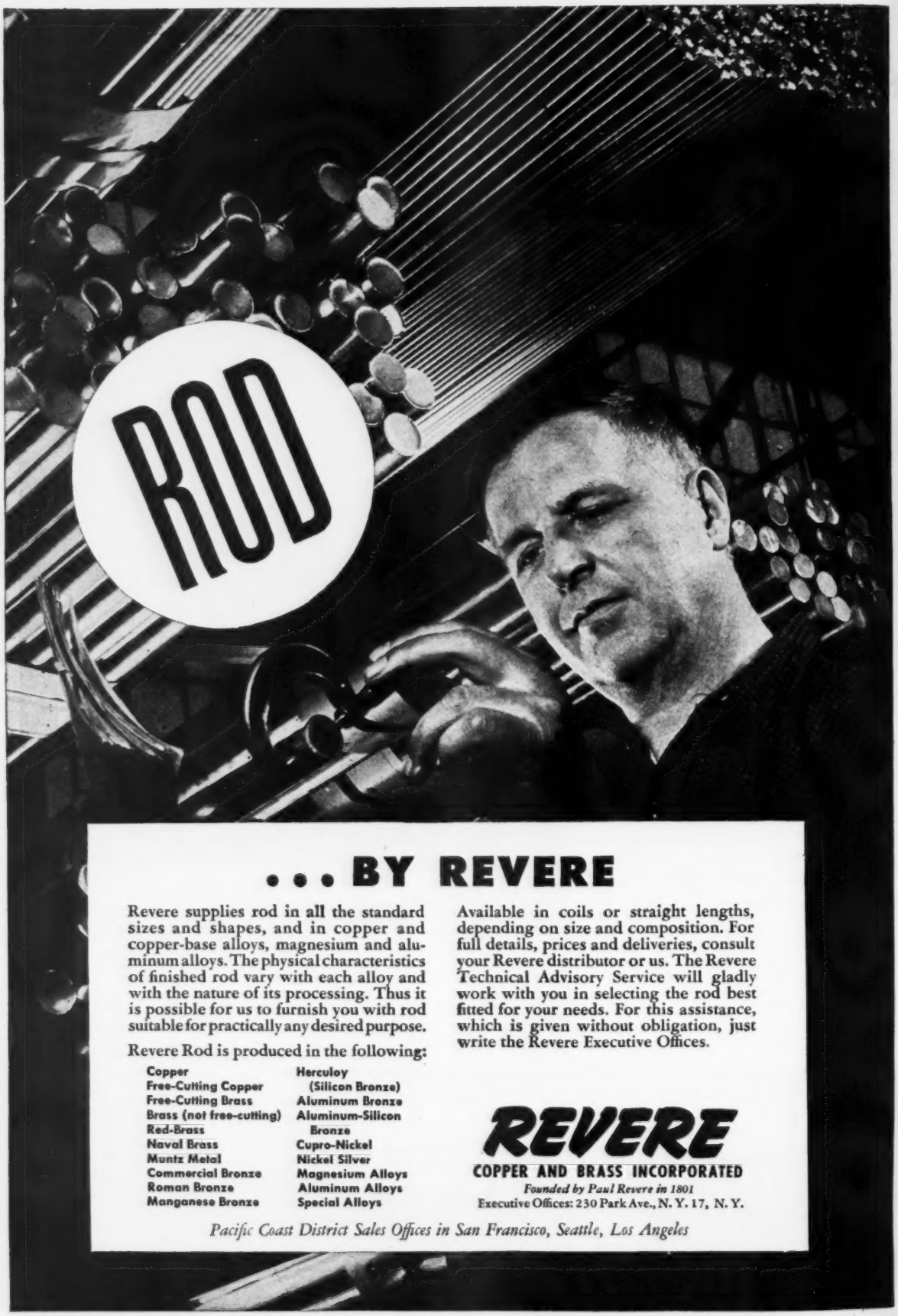

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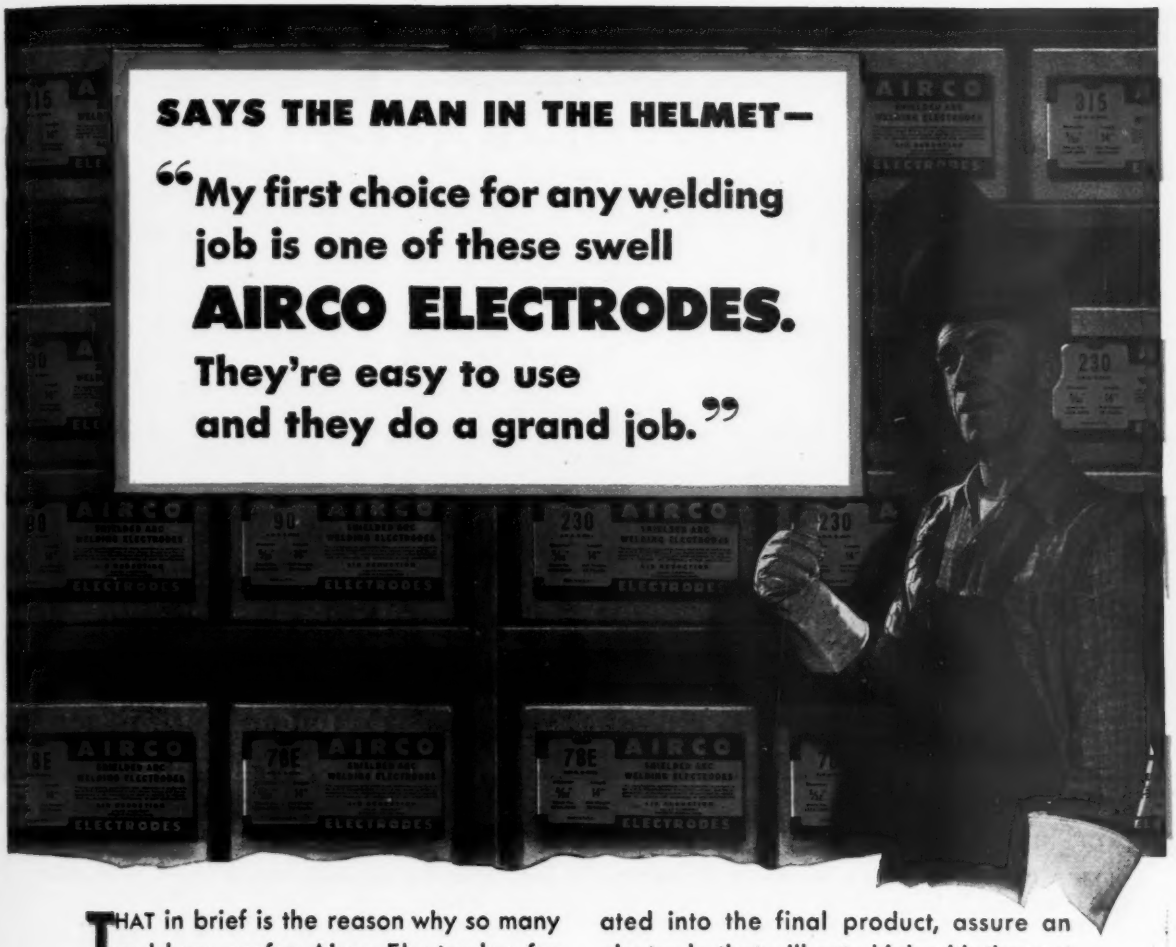
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They're easy to use and they do a grand job."
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ELECTRODES

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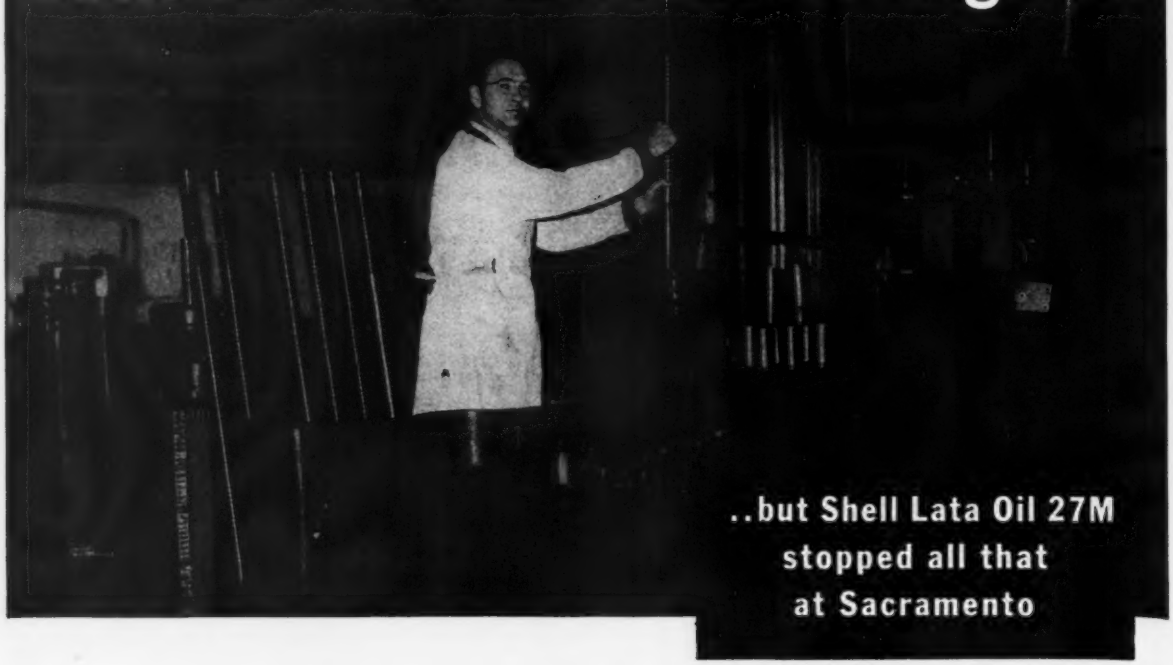


..but Shell Lata Oil 27M stopped all that at Sacramento

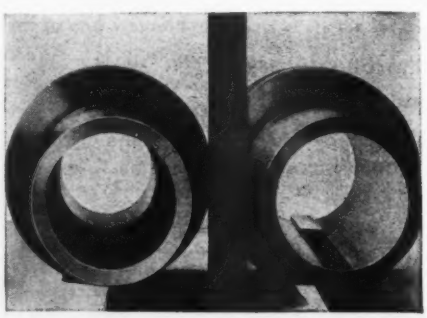
THE CAPITAL MACHINE WORKS at Sacramento, California, had a problem.

They had a contract for breech mechanism parts for howitzers. These had to be machined to amazingly close tolerances, incredibly smooth finish . . . and turned out *fast*.

This was super-tough steel, and in the broaching operation there was a decided tendency to tear and score the internal bore surface. None of the many cutting oils they tried could correct the trouble. An extra broaching operation was necessary to smooth out the finish.

At Shell's recommendation, the owners agreed to try Shell Lata Oil 27M, a light viscosity, transparent cutting oil. This oil solved the problem. It stopped the tearing and scoring . . . produced a finish so smooth that the "clean up" broaching was eliminated. And clean, light Lata Oil was highly popular with the machine operators because it did not soil their hands and clothes . . . ran off parts much faster.

Pleased with the performance of Shell Lata Oil 27M on this tough job, the shop owners put it to work on drilling, milling, lathe and other operations with equally good results.



In the 3-stage operation of broaching the part illustrated at left to arrive at the bore, right, the tearing and scoring occurred. Shell Lata Oil 27M eliminated trouble.

In the Shellengineered line-up of cutting oils—grouped under *Virgo Oils, Lata Oils, Pella Oils* and *Aluminum Cutting Oils*—you'll find the right oils for every cutting job in your plant. Ask your Shell man to explain the characteristics of each group. Shell Oil Company, *Incorporated*.

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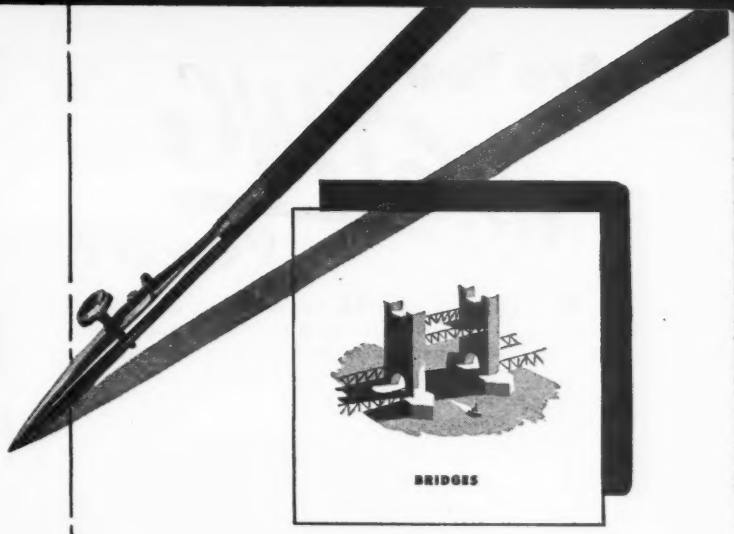

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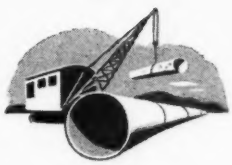
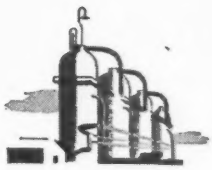
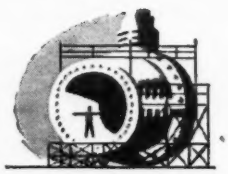
INDUSTRIAL BUILDINGS



PIPE LINES



PETROLEUM EQUIPMENT



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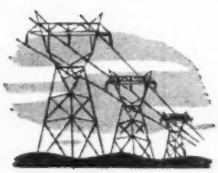

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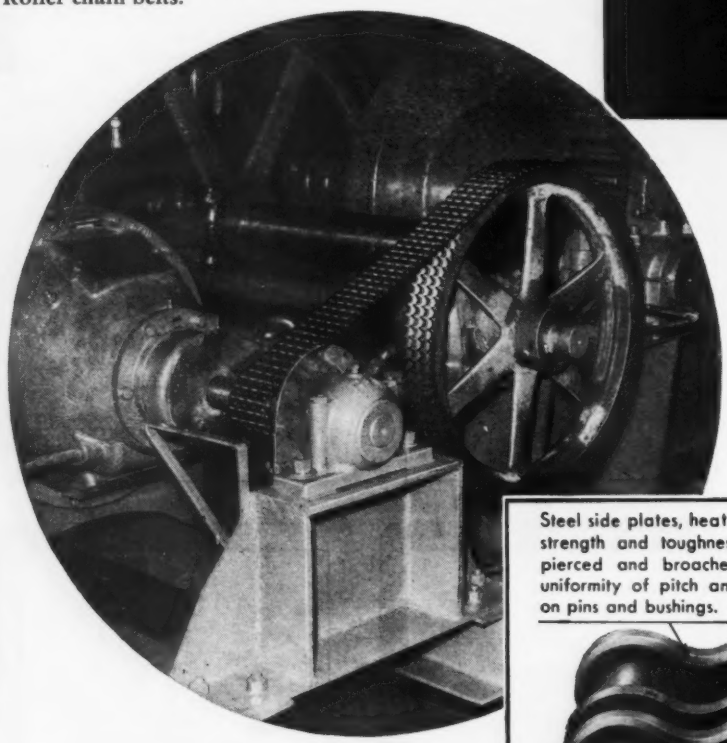
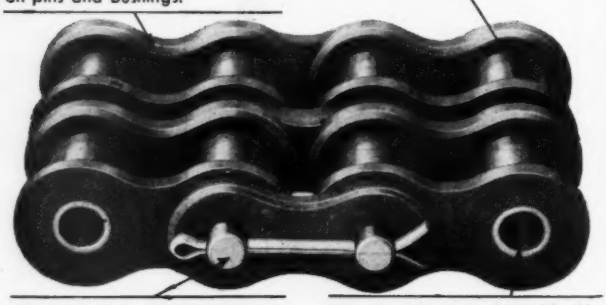


② TAKE THIS DRIVE, for example. It never slips and wastes power. Whatever amount of horsepower it's set up to transmit is exactly what it delivers. There's no expensive maintenance or repair problem. Once on the job, it's there to stay . . . for years of economical service. No need for frequent adjustment here . . . it operates efficiently without power loss, on both long and short centers.

③ HERE'S WHY IT'S SO GOOD: Look at these links. Baldwin-Rex Roller chain belt is a product of the highest quality workmanship and materials. Note how accurately the link is formed. For power economy, compactness, quiet operation, high efficiency and cleanliness—this chain has no equal.

Steel side plates, heat-treated for strength and toughness, blanked, pierced and broached to insure uniformity of pitch and press fits on pins and bushings.

Alloy steel roller heat-treated for extreme toughness and resistance to wear, then ground to size.



Alloy steel pin, case hardened, ground for accuracy, superior bearing surface. Shorter pitch chains furnished with riveted construction.

Alloy, case hardened steel bushing ground for accuracy and press fits in side bars.

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Tomorrow's Pin-Up

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Naturally, a dependable, nearby source of manufacturers wire will be an advantage to you—whether your products are for women or husky workers. Our modern mills can supply any type of wire you require — either direct from the Pacific Coast, or from other strategic locations.

Our staff of qualified wire experts is ready now to discuss possible application of U·S·S American Manufacturers Wire to whatever use you have in mind.

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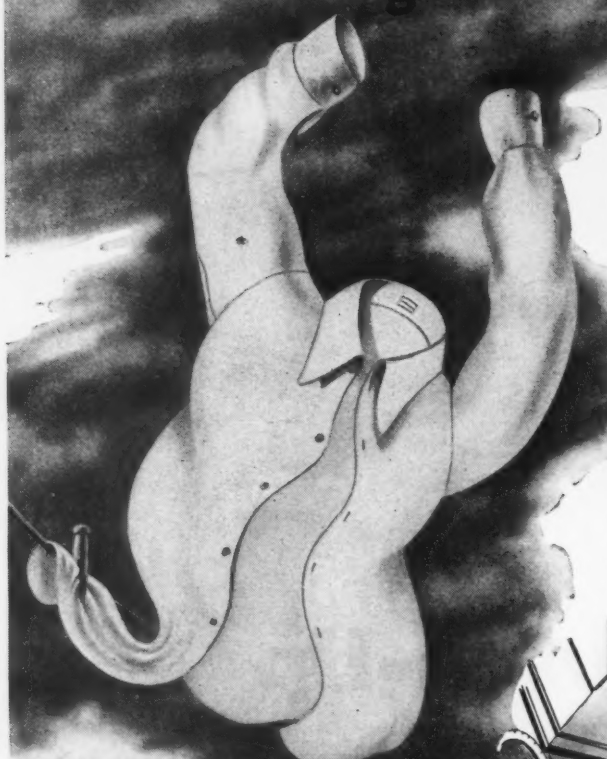
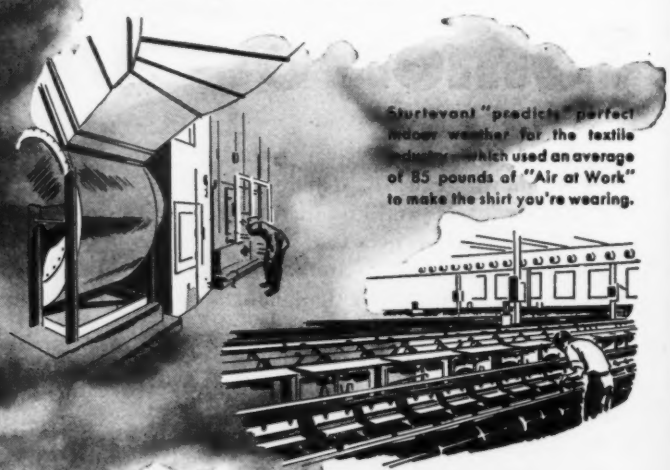
UNITED STATES STEEL

How much *Air* goes into your shirt?



LET IT BILLOW IN THE BREEZE like a schooner's sail. Your shirt is used to air . . . in fact was brought up on it! Starting with a fluffy cotton boll—through 21 different machine operations—"Air at Work" nurses it—every step of the way.

You see, cotton fibres are temperamental little fellows with a flare for getting into trouble. No wonder, considering they're curry-combed, stretched, twisted, boiled, dried, and finally made to march in close-order formation as tough, durable fabrics. During all this "basic training" Sturtevant *engineered air* has a multitude of jobs to do. It furnishes proper indoor weather; holds weights and finishes uniform; prevents static electricity and brittle or "furry" fibres; keeps the air free of lint, dust and troublesome vapors; makes mills comfortable for both men and materials. Add it all up—from bale to bolt—and you get a total of *171 pounds of "Air at Work" for every pound of cotton cloth made.*



Sturtevant "predicts" perfect indoor weather for the textile industry—which used an average of 85 pounds of "Air at Work" to make the shirt you're wearing.

FOR TEXTILES and for practically any industry you care to name—Sturtevant *engineered air* is a "must" for protecting profits, by speeding and improving production. A Sturtevant Engineer will gladly show where it fits your post-war picture to ventilate, heat, air condition, convey materials, control dust and fumes, or burn fuel—*more economically.*

Sturtevant
Puts Air to Work

THE B. F. STURTEVANT COMPANY
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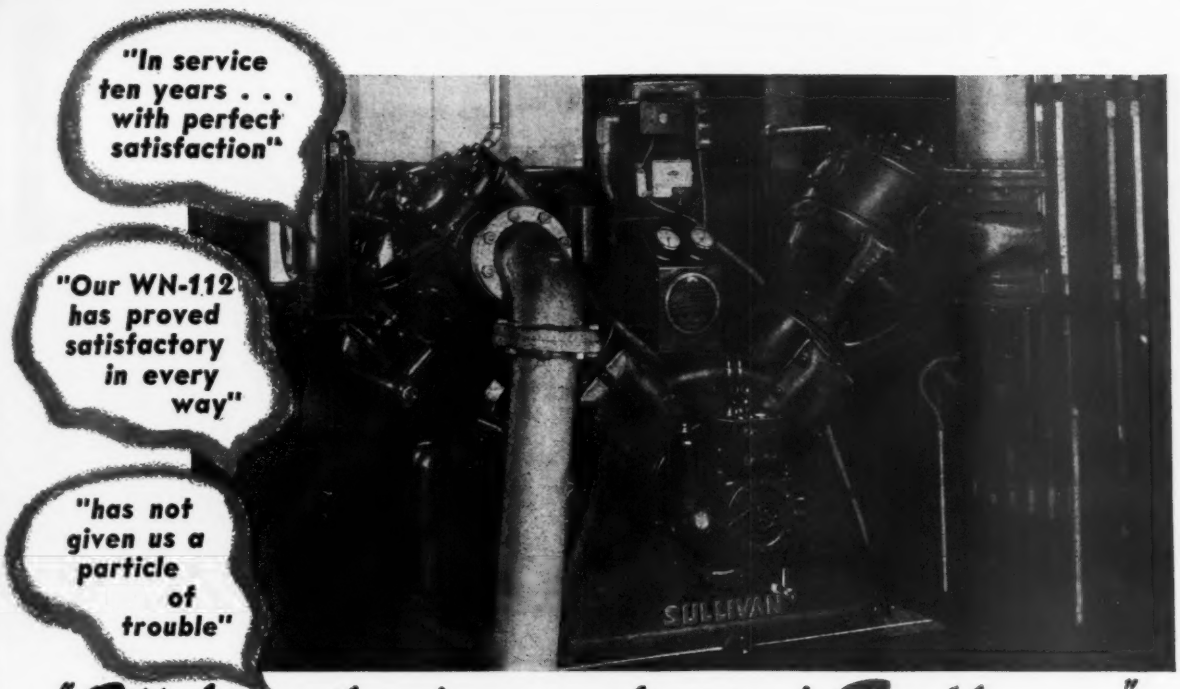
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"Our WN-112 has proved satisfactory in every way"
"has not given us a particle of trouble"
SULLIVAN

"We're glad we selected Sullivan"

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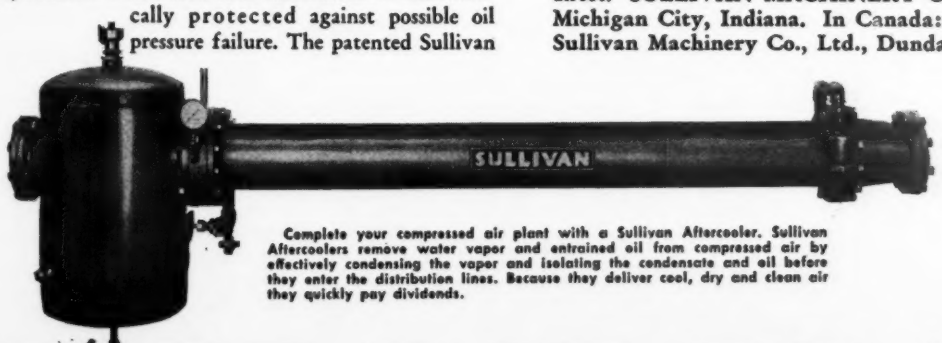

Complete your compressed air plant with a Sullivan Aftercooler. Sullivan Aftercoolers remove water vapor and entrained oil from compressed air by effectively condensing the vapor and isolating the condensate and oil before they enter the distribution lines. Because they deliver cool, dry and clean air they quickly pay dividends.

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Full-Revolving HANDI-CRANE

• With traveling speeds to 15 m. p. h. and lifting capacity to 8,000 lbs., the Model U Handi-Crane offers versatility, working range and mobility unmatched by any other type of unit.

Loading or unloading cars, stockpiling materials, placing machinery, handling scrap . . . virtually *any* job of lifting or transporting materials . . . offers an opportunity for saving time and money with a HANDI-CRANE. A copy of the new Model U Bulletin is yours for the asking . . . write for it *today!*

Hydraulic topping provides safe, smooth and accurate boom control independent of swing and hoist operation.

Rugged, wide-tread front axle provides unsurpassed stability in traveling with loads, plus easier steering.

INDUSTRIAL EQUIPMENT COMPANY

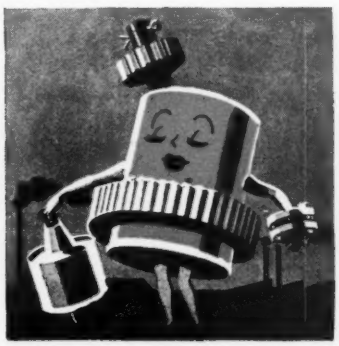
10911 RUSSETT STREET, OAKLAND 3, CALIFORNIA • 4441 SANTA FE AVENUE, LOS ANGELES 11, CALIFORNIA

GREAT GREASE THAT'S HEATPROOF, WATERPROOF

1. You can now get a grease that not only gives effective lubrication over a wide range in temperature but also has a high degree of resistance to moist air and water.

2. This great grease, UNOBA, was developed exclusively by Union Oil Company. It is made with a *barium* base, which gives it the exceptional heatproof and waterproof qualities.

3. In addition to these qualities, UNOBA has an unusual adhesiveness to metal and maintains excellent grease structure under severe mechanical working and does not deteriorate in storage.



4. This unique combination of properties qualifies UNOBA as an all-purpose lubricant, one capable of doing the jobs which previously required several different types, grades and brands.

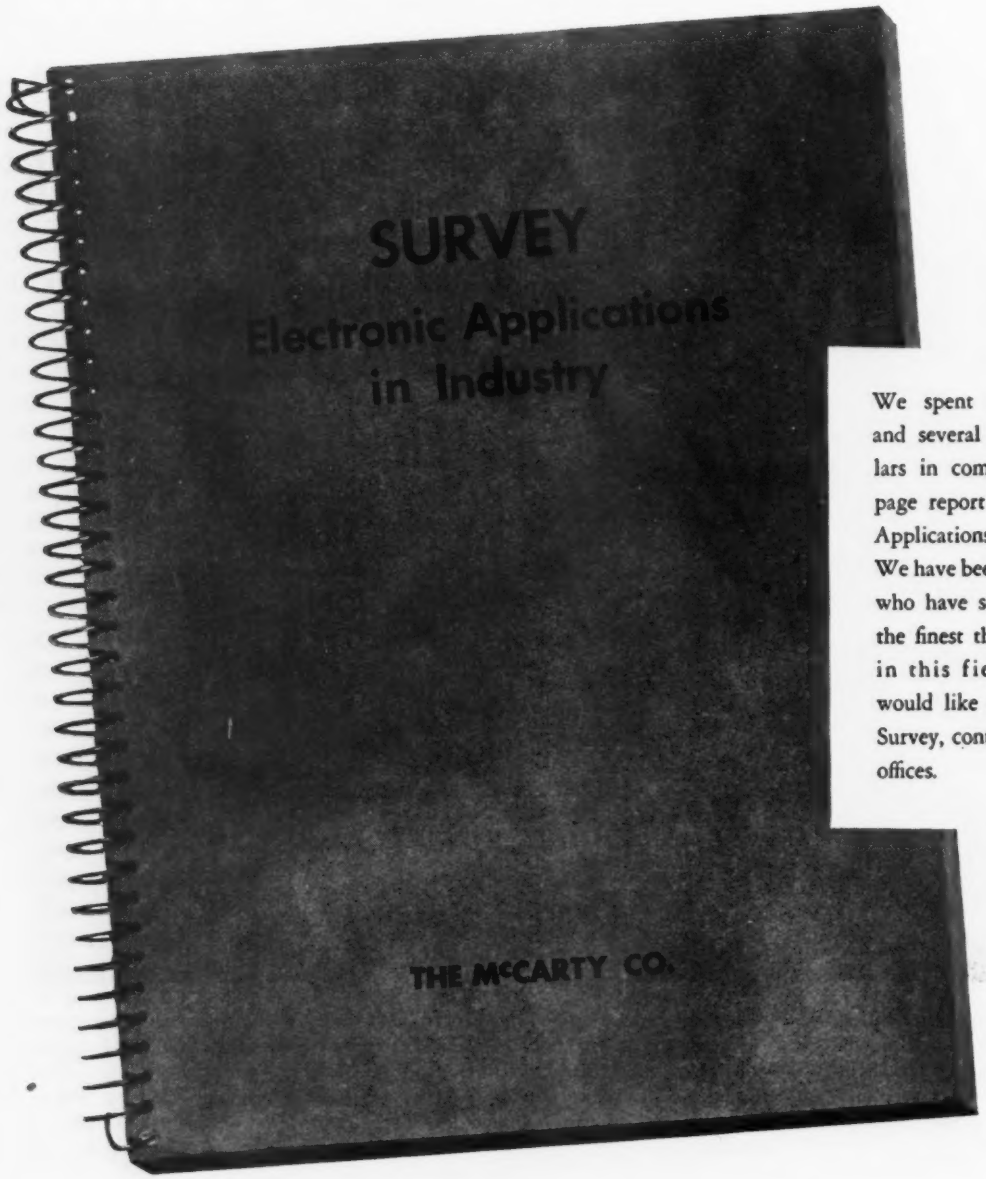
5. UNOBA protects against rust, prevents excessive wear, and prolongs the life of engine and other equipment parts. Try some of this great grease. Your Union oilman will furnish full information and deliver a supply.

UNOBA

UNION 76

Another **UNION OIL** *Success-Tested Product*

What Would You Like to Know About Present and Potential Uses of Electronic Devices?



We spent three months and several thousand dollars in compiling a 188-page report on Electronic Applications In Industry. We have been told by those who have seen it that it's the finest thing ever done in this field . . . If you would like a copy of this Survey, contact any of our offices.

Four offices—60 people—a competent, complete advertising service backed by 26 years of down-to-earth experience. This service may be of *profitable* use to you. Call or write your nearest McCarty office.

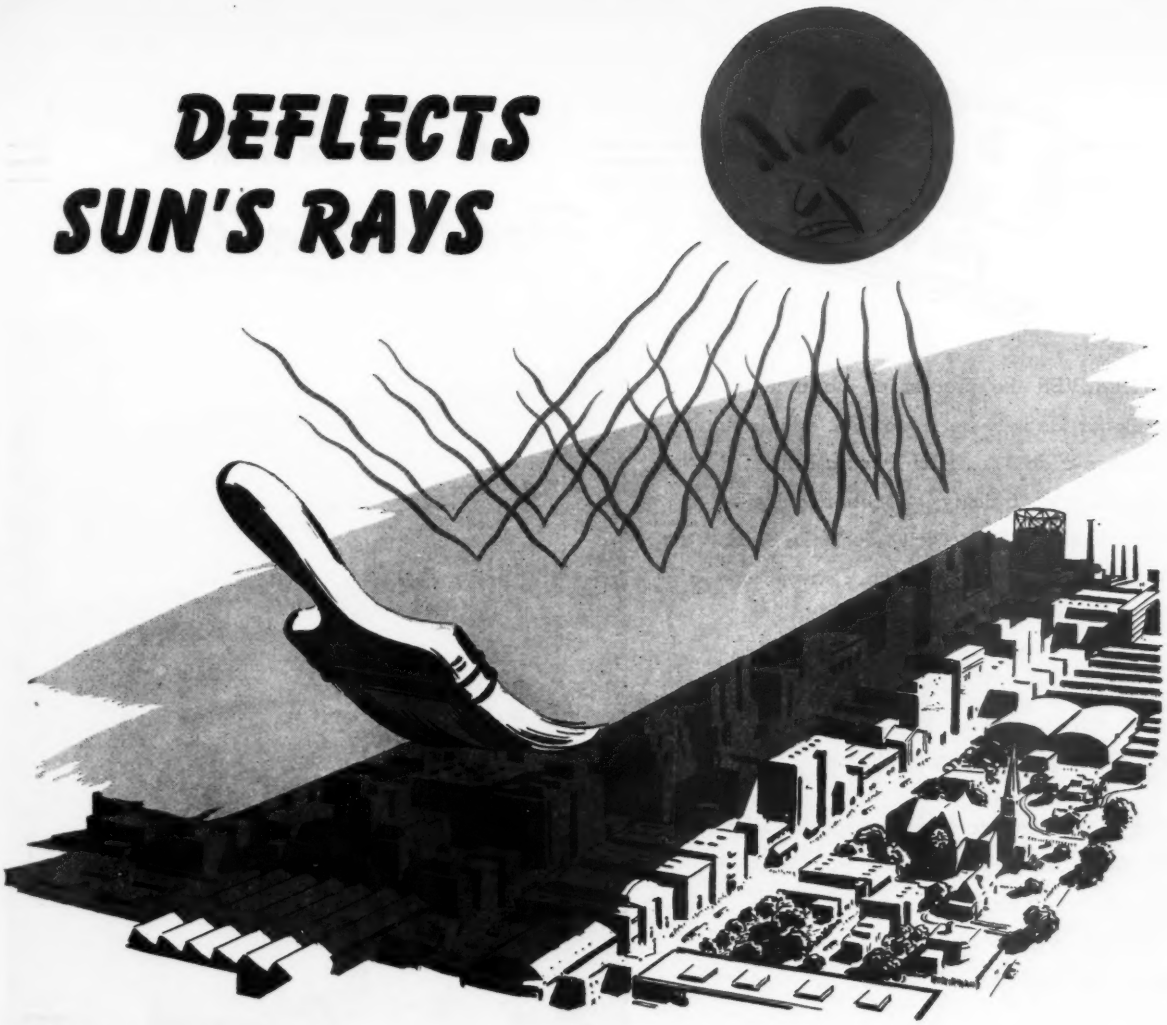
THE McCARTY COMPANY

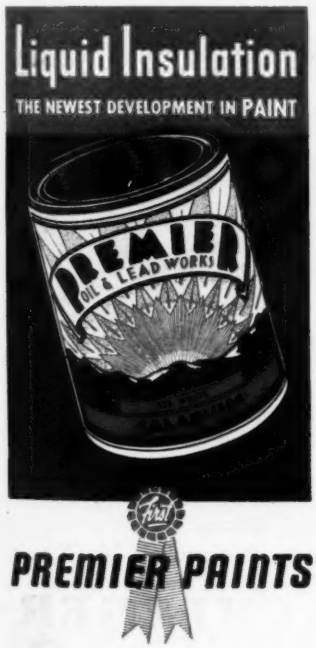
A Complete Industrial Advertising Service Since 1919

LOS ANGELES 15, BENDIX BUILDING • SAN FRANCISCO 5, RIALTO BUILDING
PITTSBURGH 19, KOPPERS BUILDING • DALLAS 1, 1311 PRAETORIAN BUILDING

MEMBER...AMERICAN ASSOCIATION OF ADVERTISING AGENCIES

DEFLECTS SUN'S RAYS





Caladium is especially designed to produce a bleed-proof decorative coating over all types of asphalt and bituminous surfaces. It may be used over asphalt coated corrugated iron, asphalt saturated roofing materials, and various kinds of asphalt impregnated building boards and papers. Caladium covers asphalt coated surfaces without bleeding, such as paved areas, roofs or other bituminous or gilsonite coatings.

Over Wood—Caladium produces a lasting finish. Particularly recommended for use over redwood.

Over Metal—The remarkable sun-heat deflecting properties give Caladium definite advantages in painting all types of metal surfaces. Greatly reduces temperatures in corrugated iron buildings, storage tanks, refineries, truck and railroad car tanks, and metal structures.

Specify *Caladium* to be used over *all* types of surfaces to prevent bleeding or to deflect the heat rays of the sun. Caladium provides a flexible, super tough, decorative coating that assures greater weather resistance, longer life.

PREMIER OIL & LEAD WORKS
3950 MEDFORD ST., LOS ANGELES 33, CALIF

Caladium

PERFECTION IN PROTECTION

P&H
HEVI-LIFT
HARNISCHFEGER CORP MILWAUKEE WIS

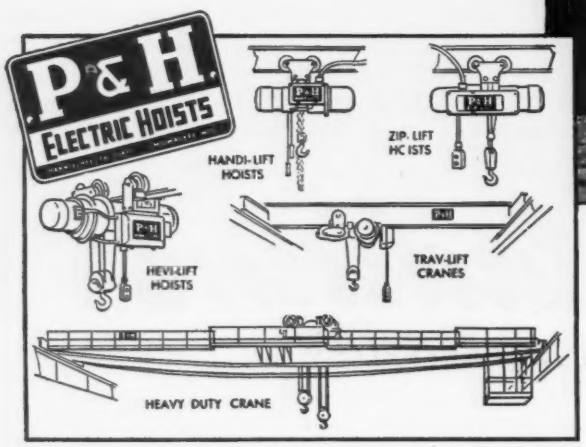
a REAL Production Man!

WHEREVER the process of manufacturing calls for loads to be moved . . . once a minute or once a day . . . P&H Electric Hoists handle them quickly — economically — "thru-the-air." Electricity does the work —lessens workers' fatigue . . . saves time— lets workers be *real* producers!

What's more, P&H Hoists relieve aisle congestion . . . reduce floor maintenance . . make for greater plant safety.

The many important advantages of P&H Hevi-Lift Hoists can benefit you today —and *tomorrow* when low-cost handling of materials will be an even more important factor.

Why not call in a P&H engineer and let him point out how your material handling facilities can be improved? Write today, or, if you wish, send for your free copy of large, new booklet of materials handling ideas. Ask for Bulletin H5-1.



General Offices:
4604 W. National Ave., Milwaukee 14, Wis.

HARNISCHFEGER CORPORATION
HOISTS • WELDING ELECTRODES • MOTORS P&H EXCAVATORS • ELECTRIC CRANES • ARC WELDERS

around the world *Protection*

The war has taught us a great many things about materials handling that will be translated into more effective and economical shipping by train, truck, boat and air—for domestic or export trade.

SIGNODE SERVICE covers the field from light box strapping to palletized or bundled loads of heavy steel. Each commodity has it's own requirements for proper packing. These we know, and pass on to manufacturers in the form of low product protection costs and, in many instances, reduced freight rates.

A survey of your shipping procedure is now in order... your Signode representative will be glad to consult. Some of his suggestions may save you money—use his services.

SIGNODE
STEEL STRAPPING CO.

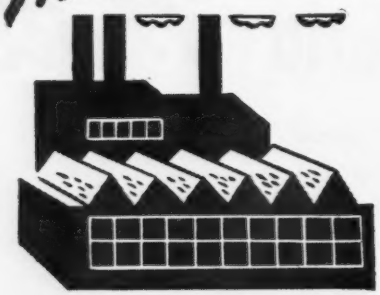
SIGNODE STEEL STRAPPING CO.
2615 N. Western Ave., Chicago 47, Illinois
San Francisco 7, Calif.: 458 Bryant Street
Los Angeles, Calif.: 441 Seaton
Seattle 4, Wash.: 1021 4th Ave.

what the PAYROLL SAVINGS PLAN *means*

To you

To your Industry

and your Employees



Facts and figures prove **the Payroll Savings Plan to be a tremendous national asset. Through this plan, no less than 27,000,000 workers have so far saved more than $13½ billions to help speed victory . . . forestall inflation . . . and build peacetime prosperity!**

Did you know that yours is one of 240,000 companies maintaining a Payroll Savings Plan? Not only is this combined effort fostering national security, but also creating a lucrative postwar market for you . . . and all American industry!

Have you realized that 76% of all employed in industry are now enrolled in the Payroll Savings Plan . . . averaging a $25 bond each month per employee? Through this plan, millions are now looking forward to homes, educational opportunities and old age independence!

Surely, so great an asset to your country, your company and your employees is worthy of your continued . . . and increased . . . support! Now is the time to take stock of your Payroll Savings Plan. Use selective resolicitation to keep it at its 7th War Loan high! Keep using selective resolicitation to build it even higher!

The Treasury Department acknowledges with appreciation the publication of this message by

WESTERN INDUSTRY

This is an official U.S. Treasury advertisement prepared under the auspices of the Treasury Department and War Advertising Council

. . . AMERICA'S GIANT LUMBER INDUSTRY RELIES ON SQUARE D *for Balanced Electrical Control*

The post-war building program calls for an unprecedented amount of lumber to be used in reconstruction work throughout the world. Lumber mills must reconvert to meet peace time needs in a minimum of time and delay. That's why they are turning to the Square D Saflex Switch Board in order to be assured of *increased electrical efficiency.*

The installation of Square D Saflex Switch Boards not only give *balanced electrical control* from log to finished board but assures a *maximum delivery* of lumber footage without the usual expensive breakdowns from overload and out-moded equipment.

Maintenance engineers throughout the country especially approve of the Square D Saflex Switchboard because of its conversion adaptability to higher ratings as more units are needed. *It actually grows with your business!* Important, too, they know that it pays off in increased production at no increase in operational expense. And that's what counts!

Prepare now to meet your post-war problems by calling in a Square D Field Engineer. His knowledge of your immediate and long range electrical problems will save you time and money.

Peeler logs entering plywood mill for first stripping operation at the United States Plywood Corporation, Seattle, Washington.

The Saflex Switch Board, pictured above, uses 50% less floor space than the conventional type switch and fuse boards.

SQUARE D COMPANY

LOS ANGELES 21 • SAN FRANCISCO 3 • SEATTLE 1 • DENVER 4 • DETROIT 11 • MILWAUKEE 2

PLANT pioneers again with..

AT LAST!—THE OUTSIDE DIAMETER OF EACH SIZE OF PIPE COVERING IS MADE TO FIT EXACTLY INSIDE ANOTHER STANDARD PIPE COVERING SIZE!

It's another great "First" by PLANT, the pioneer of light-density type *Precision Molded* 85% Magnesia! Write for valuable "Digest Of Simplified Thickness Standards"!

LIGHT-DENSITY TYPE
PLANT
PRECISION
MOLDED
85% MAGNESIA INSULATION
"THE DEPENDABLE STANDARD—MODERNIZED"

LONG DESIRED ADVANTAGES

✓ FOR USERS!

Odd Thicknesses Delivered Faster—Because they can be readily assembled from prime sizes!

Smaller Inventory! You stock only prime sizes to service every insulation need in your plant!

Easier, More Economical to Apply! Each layer of insulation fits exactly! No overlap to trim down, no gap to mud in with batch!

✓ FOR DISTRIBUTORS!

48% Fewer Items to Handle! Now stock only those special thicknesses best suited to local needs! Order prime sizes in Solid or Broken-Joint construction direct from us. We ship large lots direct to job for you!

Save Manpower, Materials, Money! Special thicknesses can be assembled without delay. Leftovers are all standard—readily usable.

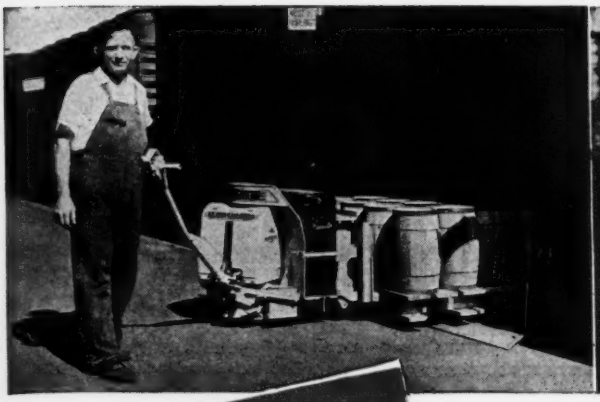
REG. U. S. PAT. OFF.

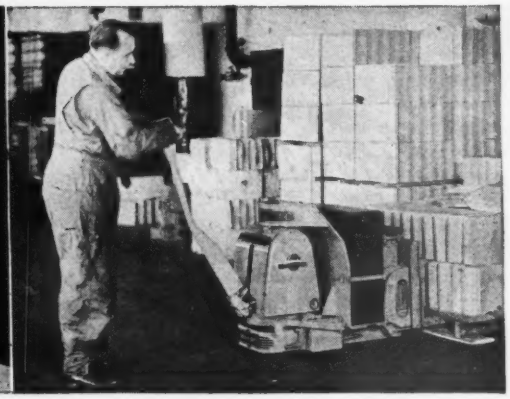
PLANT RUBBER & ASBESTOS WORKS

GENERAL OFFICES: SAN FRANCISCO - PLANT Engineering Service Units in Principal Cities - FACTORIES: Emeryville, San Francisco, and Redwood City, Calif.

Army-Navy "E" Awarded to FACTORY No. 3 Emeryville, Calif.

Manufacturers of Plant Insulating Materials and Mechanical Packings. Established 1898. *U. S. Patents Nos. 2,131,374, 2,209,752, 2,209,753, 2,209,754.





The modern battery-powered hand truck has revolutionized materials handling in industry. Even a girl can handle a two or three ton load by merely operating the handy finger-tip control. Gould Kathanode batteries have proved their fitness for this work because of their exceptional sustained power throughout the entire work day.

LITTLE GIANTS OF BIG INDUSTRY

Materials handling systems have been speeded up to meet critical war-time schedules and demands of essential production. In this modernization new types of battery-powered hand trucks have taken a prominent part. On many of these trucks Gould Kathanode batteries are standard equipment for propulsion power. For long life and sustained capacity get Kathanode, the original glass mat battery—introduced in the United States by Gould in 1925.

FOR EXCELLENCE IN STORAGE BATTERY PRODUCTION AT DEPEW PLANT

GOULD

Since 1898 THE BATTERY PICKED BY ENGINEERS

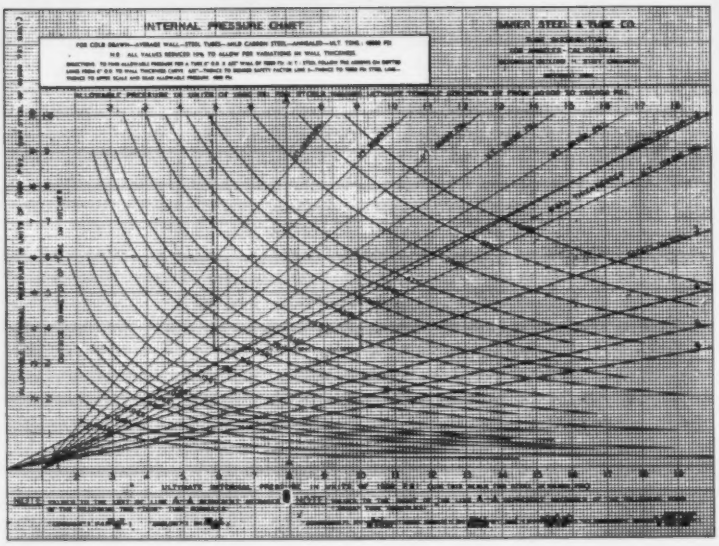
Gould Storage Battery Corporation, Depew, N. Y., Factories: Atlanta • Chicago • Dallas • Depew Leavenworth • Los Angeles • North Bergen • Rock Island • St. Paul • Sioux City • Zanesville

DO YOU WANT

more information on the Kathanode Transporter Unit? Write Dept. 89 for Folder 2B. Gould Storage Battery Corporation, Depew, New York

GOULD BATTERIES

Get Your Copy FREE



INTERNAL PRESSURE CHART FOR MECHANICAL TUBING

A chart showing safe working pressures for round steel mechanical tubes up to 10" outside diameter, in wall thicknesses from .035" to 1", has been prepared by our engineering department.

Calculations represent the safest lowest averages as between two groups of the six most frequently used formulas, and are based on Cold Drawn, average wall steel tubing, having an ultimate tensile strength of 40,000 to 100,000 psi with corrective deduction of 10% to allow for possible variation in wall thickness.

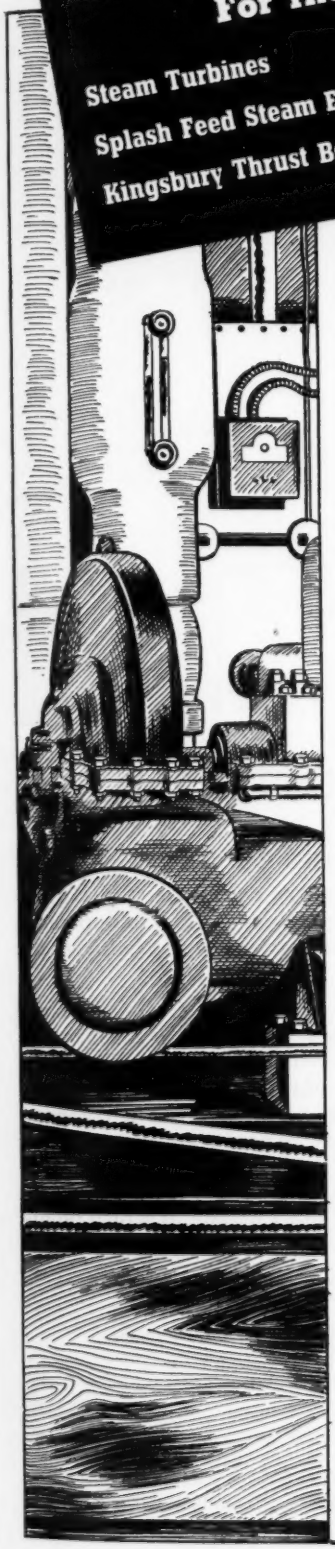
We invite you to send for your free copy.

BAKER
STEEL & TUBE CO.
955 SOUTH ALAMEDA ST.
LOS ANGELES

We also have a chart for small sizes ⅛" to 1" O.D.

For the Lubrication of

Steam Turbines
Splash Feed Steam Engines
Kingsbury Thrust Bearings
Circulating Oil Systems
Pneumatic Tools
High Speed Fine Machinery



CYCOL
TURBINE OILS

Cycol Turbine Oils are *solvent refined* and *double vacuum distilled* from selected California base stocks. They meet every requirement of the 2000 series oils of the United States Navy, and are "built" for lubrication jobs that demand complete and rapid demulsability.

Whereas the U. S. Government Emulsion Test requires a minimum of thirty minutes for separation of oil and caustic soda solution, Cycol Turbine Oils *separate completely in five to ten minutes.*

To answer all industrial needs, Cycol Turbine Oils are available in four grades: Light (140), Medium (210), Heavy (300), and Extra Heavy (400). Your nearby Associated Representative can give you full information—and *local delivery.*

TIDE WATER ASSOCIATED OIL COMPANY

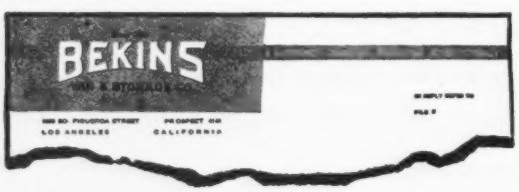
LET'S GET ASSOCIATED

SPECIALIZED LUBRICANTS FOR EVERY INDUSTRIAL PURPOSE

20th YEAR Associated Football Sportcasts
Get Free Schedules at All Associated Dealers

One of the modern White "van liners" in the Bekins fleet. *Upper left:* The first "truck" operated by the Bekins Co. *Right:* Milo W. Bekins, President.

Great Names in Transportation



..."**FOR OVER 30 YEARS** we've been buying White Trucks . . . the White Personalized Service Plan has been a big help to us in keeping our equipment operating in these difficult times"... Milo W. Bekins, President.

BEKINS VAN & STORAGE CO., Los Angeles ... called by *Time Magazine* in a recent article, "the biggest moving and storage business in the world," has operated White trucks for more than thirty years of its half-century of experience.

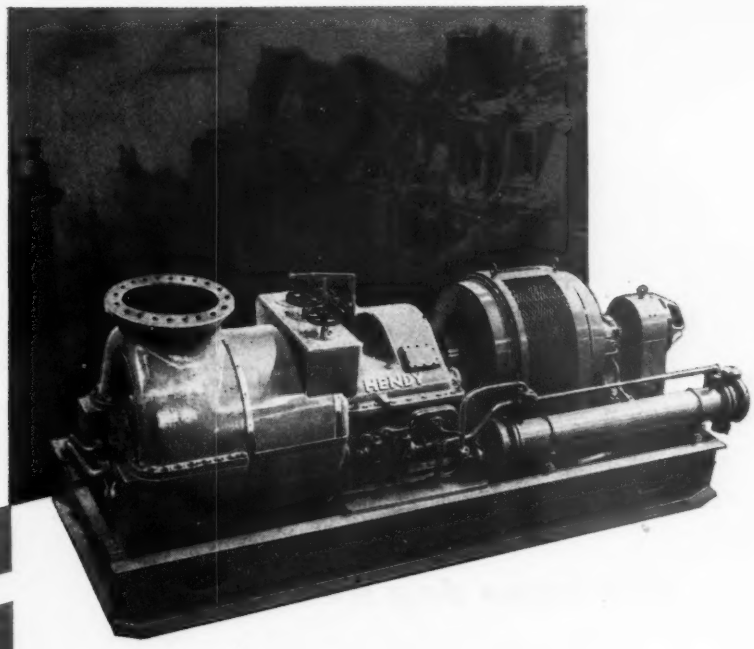
From a one-story brick warehouse and six horse-drawn vans, the company . . . still owned and under the management of the family of the founder . . . is today the largest organization of its kind in the world . . . operating 37 warehouses in leading cities of the West. The company bought its first White truck over 30 years ago. Now 40 Whites operate in the Bekins fleet on a round-the-clock schedule. Bekins dispatchers route them as far east as New York, Detroit, and New Orleans, at which points they are available for return loads to the Pacific coast.

White

THE WHITE MOTOR COMPANY • Cleveland

A larger volume of new Super Power Whites for commercial use is now assured by government order. Your White representative will be glad to help you make application.

FOR MORE THAN 45 YEARS THE GREATEST NAME IN TRUCKS



HENDY SEMI-PORTABLE STEAM TURBINES

....out of their design for Europe –an idea for industry at home

In bringing ruined cities back to life again, power for water supply and for lights and electric motors is among the first and greatest needs. ¶ Hendy, in cooperation with nationally known consulting engineers,* is building turbo-generators for just such purposes. They are compact, semi-portable units, easily set up and made ready for immediate use. Then, when they have served their purpose, they can be quickly taken down and moved to other areas and other tasks. ¶ But the need for semi-portable power units is by no means limited to war-torn Europe. In this country and abroad, Hendy semi-portable turbo-generators and Diesel-electric sets are, for example, highly adaptable to the chemical, petroleum, mining and lumber industries and *perhaps to your own.* ¶ But whatever your power needs Hendy will welcome the opportunity of working with your engineers in adapting Hendy Power to your requirements.

***"PACKAGED POWER"**

Turbo-generators designed by Hendy are used in the "Packaged Power Plants" developed for use in war-torn Europe by the internationally famous organization of consulting engineers, Peter F. Loftus, Pittsburgh, Pennsylvania. Write to Hendy for eight-page folder describing these plants.

Power by HENDY

Engineered to suit your needs

EST. 1856

JOSHUA HENDY IRON WORKS • SUNNYVALE, CALIF.
CROCKER-WHEELER ELECTRIC MANUFACTURING COMPANY DIVISION • AMPERE, NEW JERSEY

TURBO-GENERATORS

REDUCTION GEARS

STEAM TURBINES

DIESEL ENGINES

Branch Offices: BOSTON • BUFFALO • CHICAGO • CINCINNATI • CLEVELAND • DETROIT • LOS ANGELES • NEW YORK • PHILADELPHIA • PITTSBURGH • SAN FRANCISCO • WASHINGTON

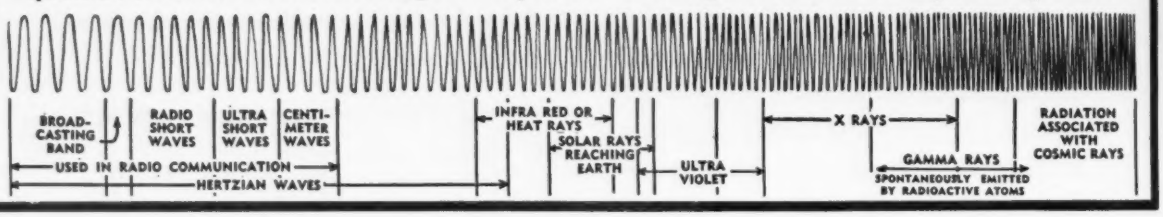
Shhhhhh!

...we can only whisper about it now...

But some day we can tell you how good Commercial Iron Works is in installation and repairing radar!

CIW has the "Know How" in all Electronic Frequencies Including Radar!

The chart below shows the component parts of the ether spectrum, from the lowest to the highest frequencies. Commercial Iron's knowledge and experience runs the gamut from low to highest frequencies.



Right now, Uncle Sam, for very good reasons of military security, keeps us modest. But this we *can* tell you:

Since the advent of war and the rapid development of radar and electronic devices, Commercial Iron Works' already well staffed and equipped electrical engineering and production departments have become recognized as the Pacific Northwest's finest in servicing, installing and repairing radar, radio and electrical equipment—every type of electronic device now in use on Uncle Sam's fighting ships. The excellence of their work has been recognized by top Navy inspectors.

This is just another example of the "know how" that Commercial Iron has developed during the war to serve industry after the war. CIW is staffed and equipped to go to work for any industry where electrical equipment plays a part.

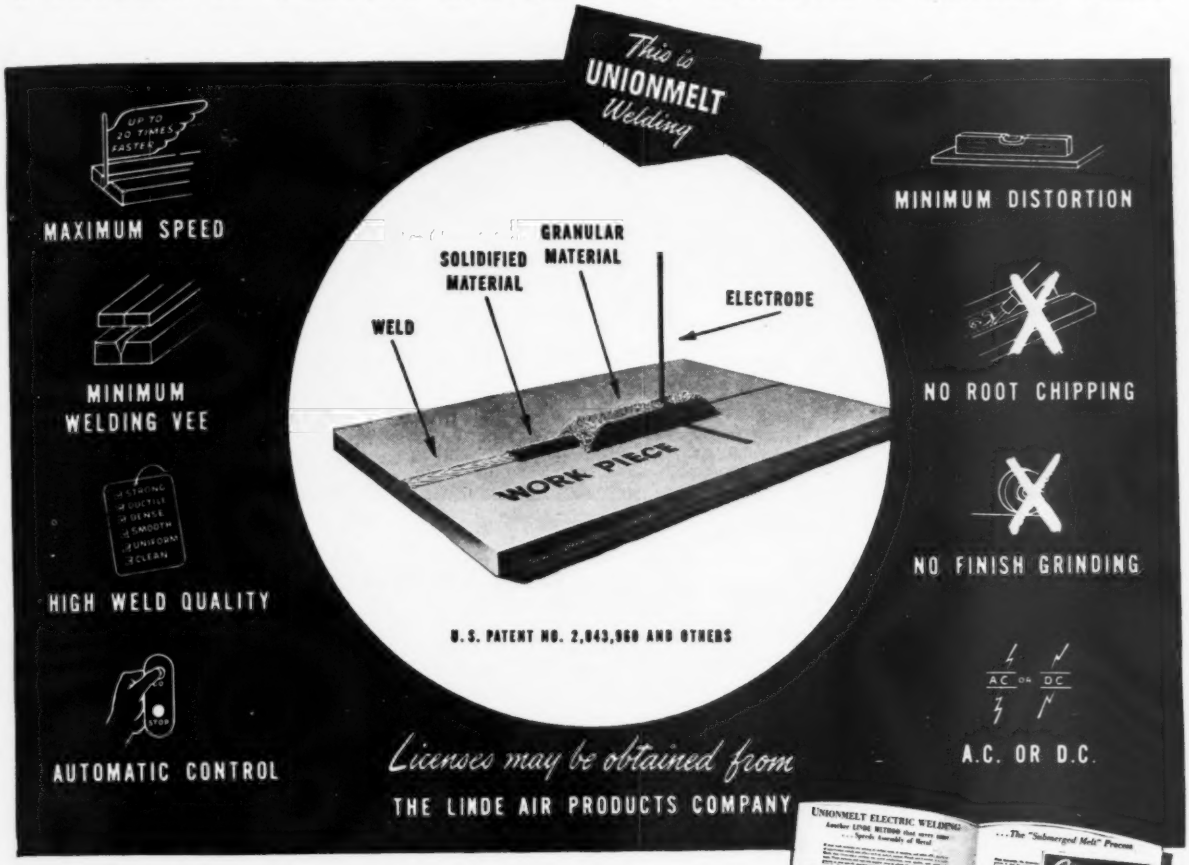
COMMERCIAL IRON WORKS

PORTLAND, OREGON

CONTRACTORS • ENGINEERS • MACHINISTS • FOUNDERS • SHIPBUILDING • MARINE REPAIRS • DRYDOCKING

These are the advantages of Automatic UNIONMELT Electric Welding

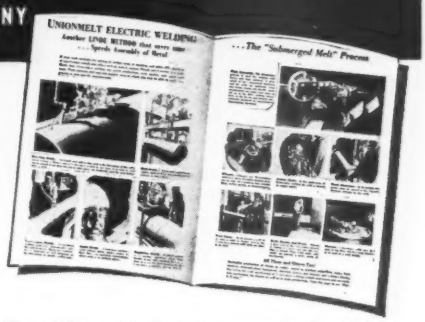
A PROCESS OF WELDING ELECTRICALLY BENEATH A MINERAL MELT



Hundreds of manufacturers are now benefiting by the advantages of UNIONMELT Welding. It gives them top quality welds at speeds that are greater than with any other similarly applicable process.

If your work includes the joining of carbon steel, of stainless, and other alloy steels, or of non-ferrous metals and alloys such as nickel, copper, Monel, and Everdur, it is quite likely that UNIONMELT Welding can speed production, raise quality, and lower your costs.

Anyone who wishes to use this patented invention may do so under our standard license agreement. License fees are low and are based upon extent of use. Complete engineering assistance is available to licensees.



For additional information send for the folder *"Report No. 6 on the Use of Linde Methods in Mass Production"*—or ask a Linde representative to help you determine where you can use the UNIONMELT process advantageously.

MARITIME "M" AWARD FOR OUTSTANDING PRODUCTION ACHIEVEMENT

THE LINDE AIR PRODUCTS COMPANY

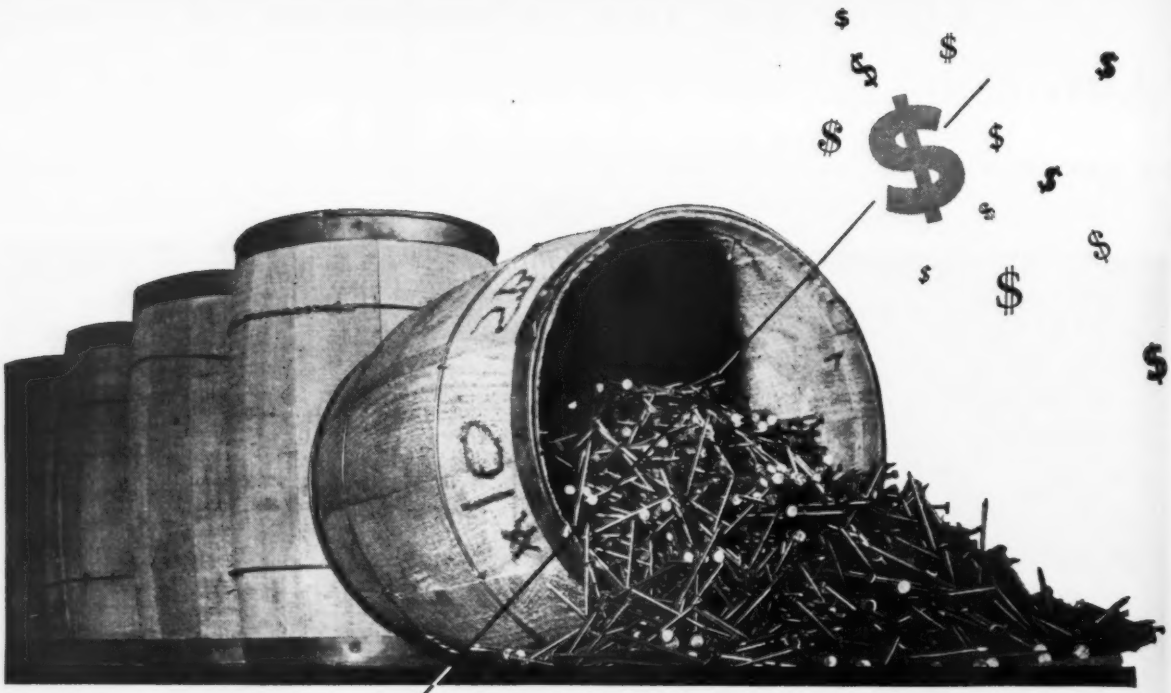
Unit of Union Carbide and Carbon Corporation

30 E. 42nd St., New York 17, N. Y. UCC Offices in Other Principal Cities

In Canada: Dominion Oxygen Company, Limited, Toronto

The word "Unionmelt" is a registered trade-mark of The Linde Air Products Company.

★ BUY UNITED STATES WAR BONDS AND STAMPS ★



THERE'S CASH IN THOSE KEGS—*as well as nails*

● "Open a keg of nails" with a Bank of America commodity loan—and you will get additional working capital! Which is just another way of suggesting that no matter what your commodity may be—if it is marketable—it is also good collateral for a loan. Bank of America maintains a special Commodity Loan Department which offers an experienced and prompt service to farmers, manufacturers and other producers throughout California.

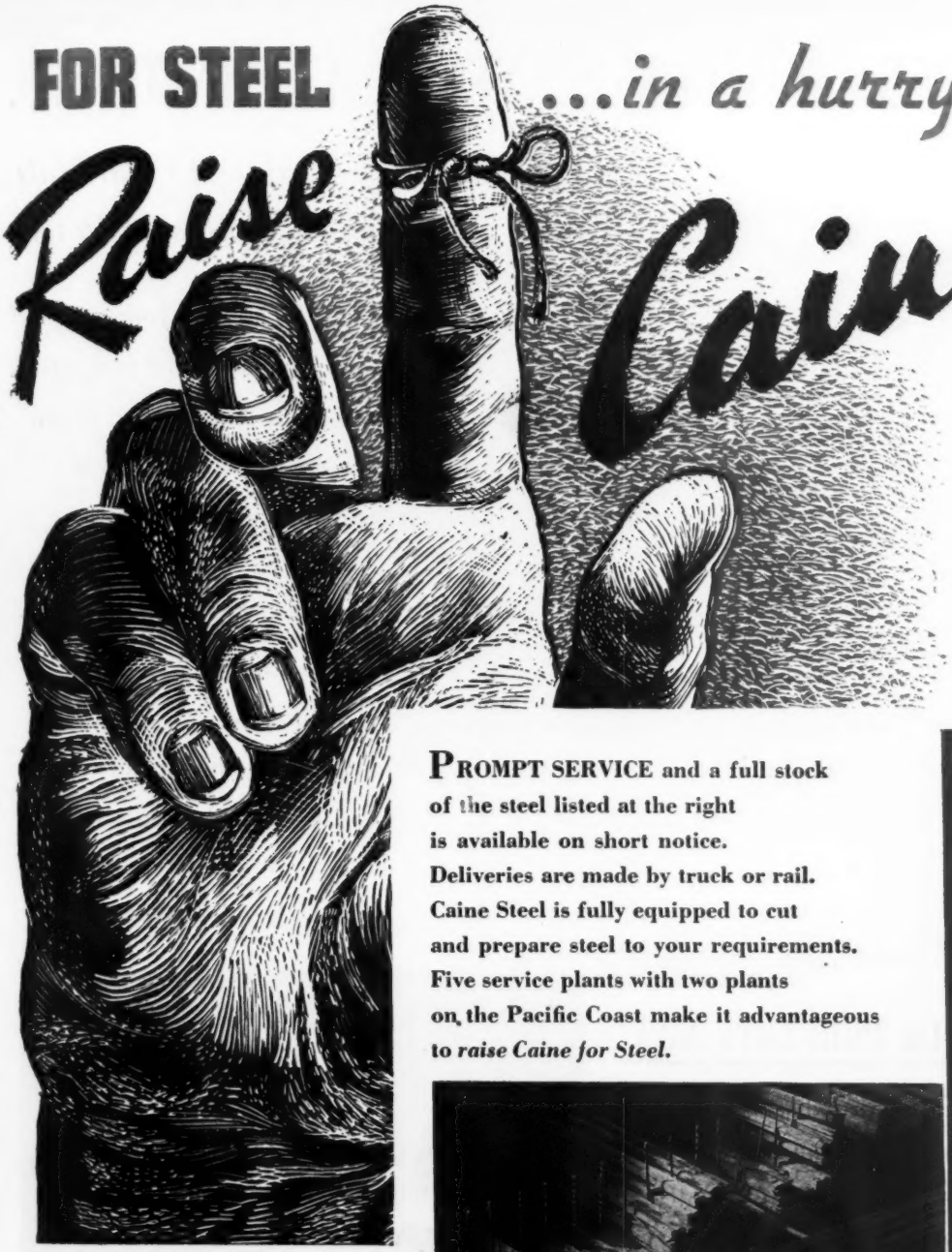
Convert your inventory into cash

BANK OF AMERICA **COMMODITY LOANS**

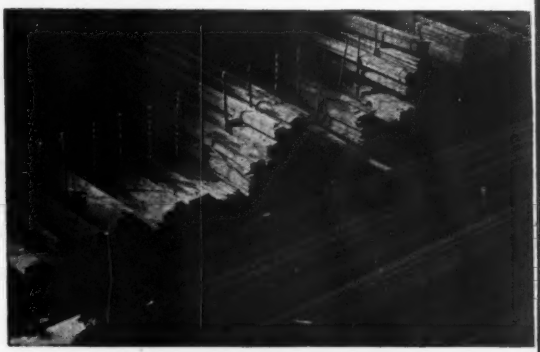
California's statewide bank

FOR STEEL ...in a hurry

Raise Caine!



PROMPT SERVICE and a full stock of the steel listed at the right is available on short notice. Deliveries are made by truck or rail. Caine Steel is fully equipped to cut and prepare steel to your requirements. Five service plants with two plants on the Pacific Coast make it advantageous to *raise Caine for Steel.*



WAREHOUSE STOCKS OF:

SHEET STEEL
HOT ROLLED,
COLD ROLLED,
HOT ROLLED
AND PICKLED,
GALVANIZED,
LONG TERNES,
VITREOUS
ENAMELING,
UNIFORM BLUE.

STRIP STEEL
HOT ROLLED,
COLD ROLLED
STRIP,
COLD ROLLED
FLAT WIRE.

MILD STEEL
BARS, BANDS,
AND PLATES

HOT ROLLED
STRUCTURAL
SHAPES

REMEMBER
THERE'S A NEW SOURCE
OF STEEL IN THE WEST

CAINE STEEL CO. of CALIF.

LOS ANGELES 11
2451 E. 23rd St. • KI. 1211

OAKLAND 8
3110 Adeline St. • HU. 0900

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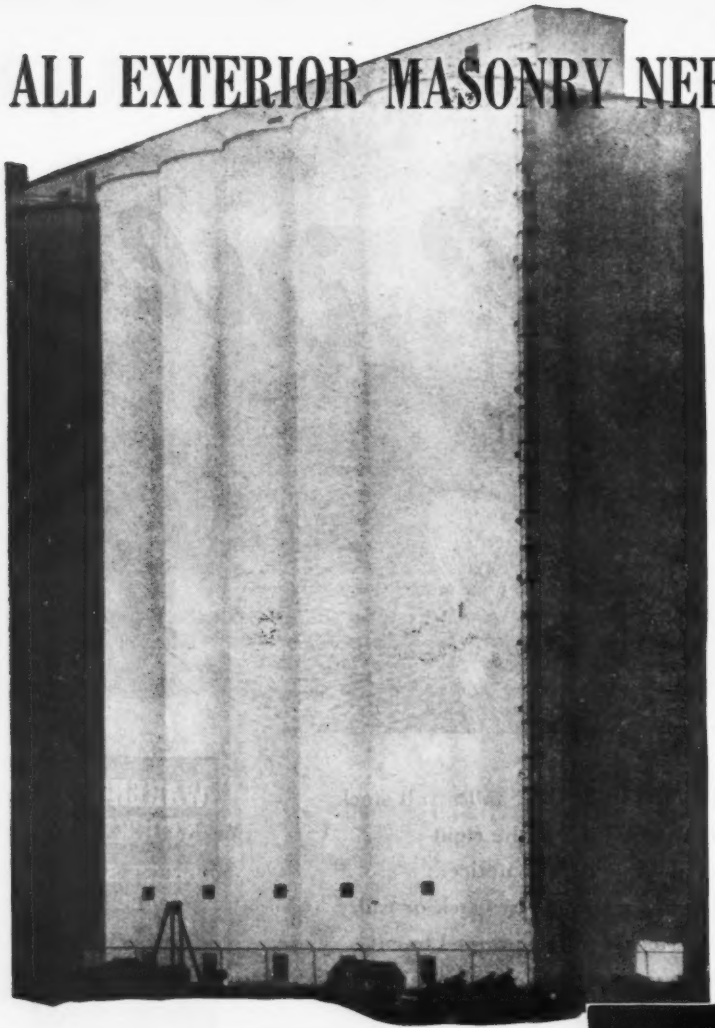
ALL EXTERIOR MASONRY NEEDS A RAINCOAT...



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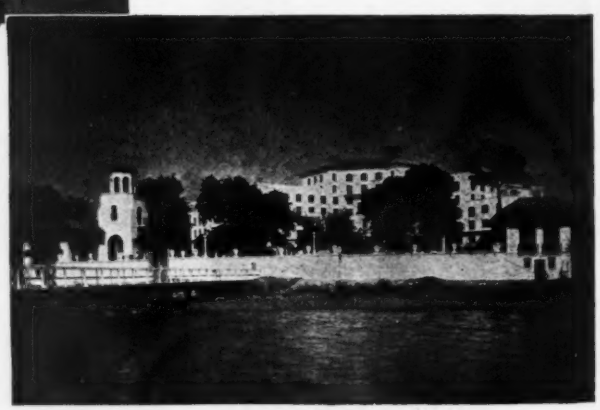

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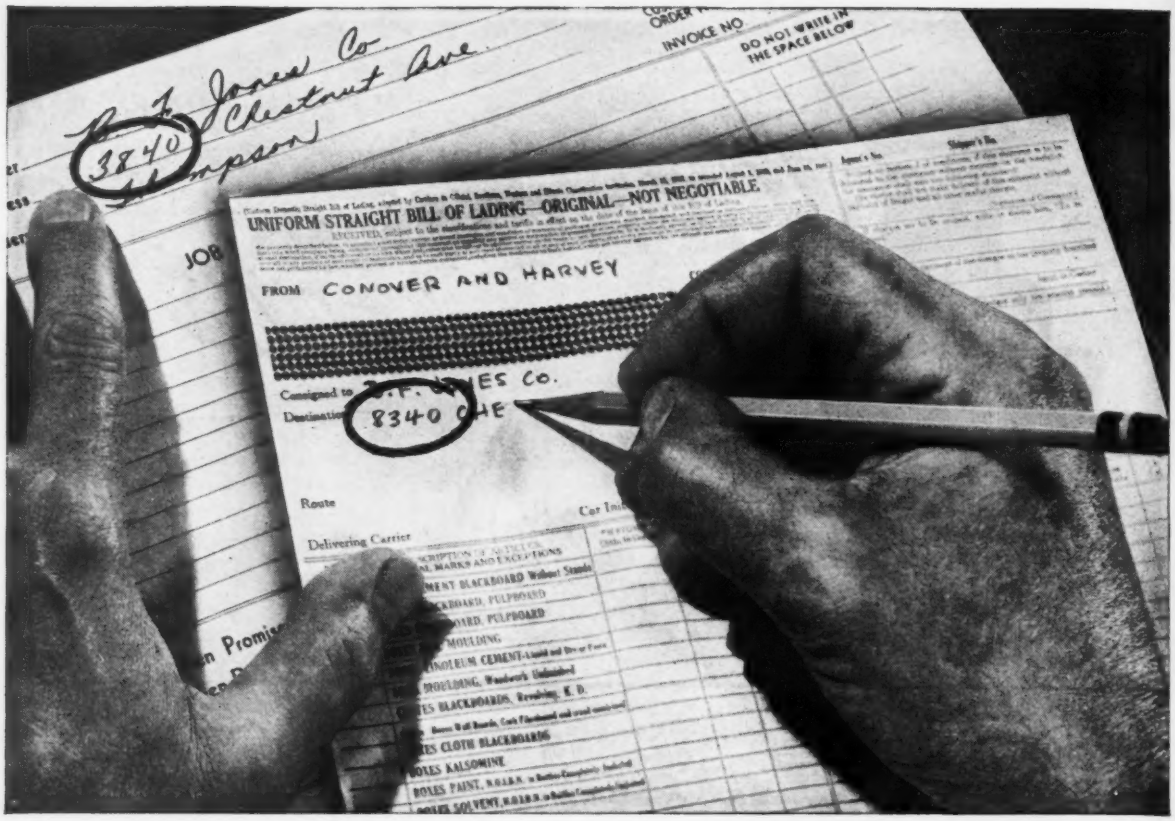

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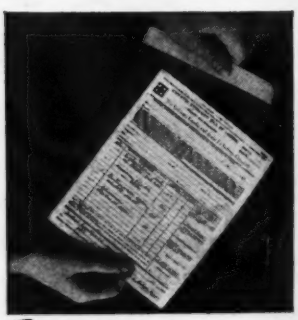

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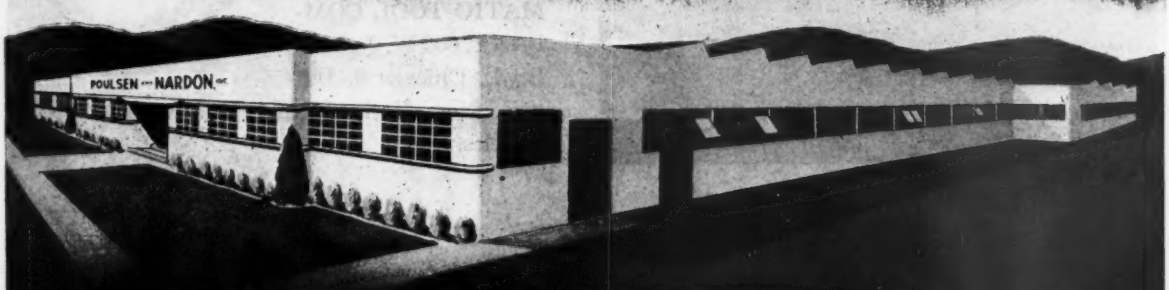

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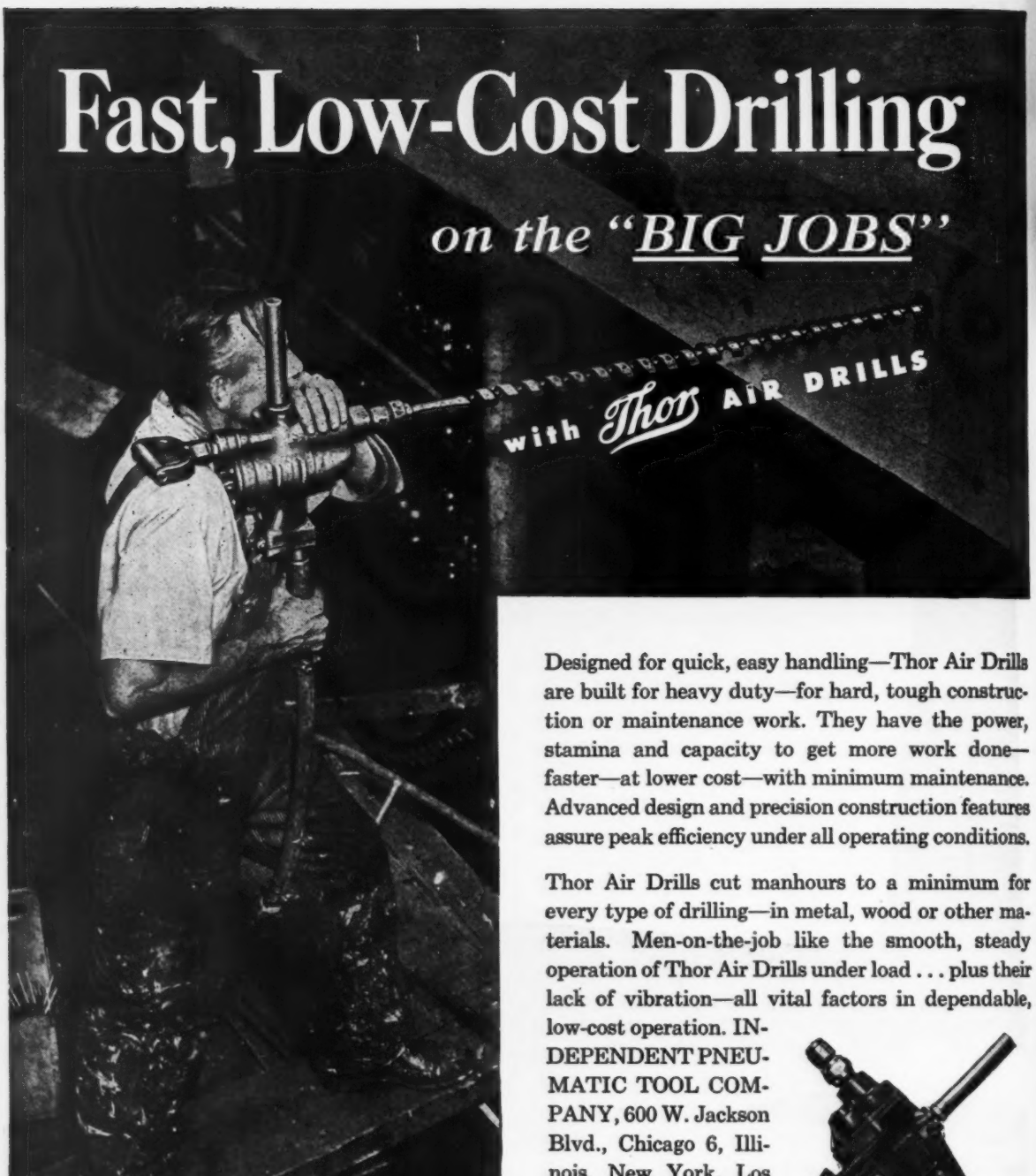

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Above: A No. 362-RWX Rotary Drill boring 1¼" holes in deck girder and beam on wooden minesweeper.

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Spotlight on the NEWS

WESTERN INDUSTRY
FOR SEPTEMBER, 1945

VOLUME X NUMBER 9

Atomic Bomb Economics

Reams have been printed already about the atomic bomb, its nature and destructive effect, and the possible application to industrial use of this tremendous energy. But no publication so far has stopped to consider that this $384,000,000 project in eastern Washington, the largest war plant in the West, may have some future effect on our Western industrial economy. With this in mind, *Western Industry* presents in this issue (pages 41-44) a discussion of this aspect of the atomic bomb discovery based on a visit to the Hanford Engineer Works by the editor.

Bombed Into Reconversion

The atomic bomb literally blew the country into a peace economy, and as a result we aren't so very much better prepared for peace than the Japanese are, except that we can do what we please and the Japs can't. Things are very much in a state of flux, but the situation regarding reconversion, employment and materials is set forth on pages 45-47 and 62 as well as it can be evaluated at this early date. Our Washington editor also summarizes some of the highlights (page 60).

Maintenance Notes

Miscellaneous pointers on this subject may be found on page 65, touching on such points as glue, boiler scale removal, rust prevention and insulation.

Can't Beat Expert Advice

Telling the other fellow how to run his business is one of the great American sports. So the Southern California Management Council decided to make it official by having representatives of labor and management tell what each would do if he were in the other fellow's shoes (pages 50-51). Now if each side would follow the other's advice, that would be something!

Advantages of Magnesium

Magnesium won't burn until heated to more than 1200 degrees, regardless of what some people think, an important fabricator of this metal points out (pages 52-53). Furthermore, he says, corrosion can be overcome by proper design, and goes on to give practical information on how to use magnesium. Relative design characteristics of light metal alloys and ferrous metals are tabulated on page 54.

More Money for Brains

Comparisons between Eastern and Western wage scales are frequent, usually to show that the West pays too much to compete with the East. But now here comes a speaker who says that in middle executive salaries the West pays so little that it won't get the brains it needs to steer its industrial operations through the postwar period safely (page 56). Sneers or cheers, depending on whether you meet the payroll or are on it.

Safety in Overhead Cranes

Schmitt Steel Company in Portland believes that its crane operators should be given careful training and should have definite rules to follow for both operation and care of such equipment (pages 58-59). Safety is a top priority in their program.

Utilizing Enemy Patents

Patents on canning crab seized from the Japanese, and for building materials out of sawdust from the Germans, are among the enemy patents now being used by Westerners, so the Alien Property Custodian informs *Western Industry* (page 54). At least 73 Western firms and individuals are making use of such patents, and more could follow suit simply by asking the Alien Property Custodian.

Are Their Faces Red?

Some of our Senators and Congressmen from the West are going to feel a bit annoyed when they read (page 60) what a poor showing they make in answering inquiries, compared to their brethren from Eastern states. Our Washington editor ran a little test, just to see how people in Congress would react.

On the Steel Chessboard

We will have a Western steel industry after the war, but not necessarily the kind that was hoped for (pages 50-51). The chances seem to be very much against anyone taking the Geneva mill, as U. S. Steel declined to bid on it and instead will expand in California, while Kaiser and C. F. & I. are still figuring whether they can do anything with this efficient but remotely located plant. RFC evidently believes Kaiser has a good enough proposition at Fontana to make a go of it, because they refused to scale down his loan. But there isn't much chance for any lower prices on steel, which is what the consumers have been shouting for.

STANDARD ENGINEERS NOTEBOOK

Inhibited cutting fluid prevents rust damage

CALOL CUTTING CONCENTRATE—EP MIXING RATIOS

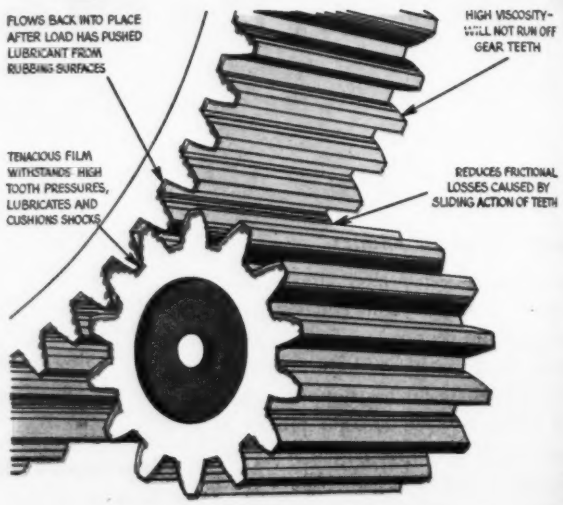
Severity	Type of Machining Operation	Ferrous Metals; Steels and Irons				Non-Ferrous Metals	
		Class I 70 Plus*	Class II 50-70*	Class III 40-50*	Class IV Below 40*	Class V 100 plus*	Class VI Below 100*
	(First figure denotes amount of diluent; the second, amount of concentrate.)						
1.	Broaching; internal (Most severe operation)	3:1	2:1	1:1	1:1	5:1	2:1
2.	Broaching; surface	5:1	4:1	3:1	2:1	5:1	4:1
2.	Threading; pipe	5:1	4:1	3:1	2:1	5:1	4:1
3.	Tapping; plain	5:1	4:1	3:1	2:1	7:1	4:1
3.	Threading; plain	5:1	4:1	3:1	2:1	7:1	4:1
4.	Gear shaving	8:1	6:1	4:1	3:1		6:1
4.	Reaming; plain	8:1	6:1	4:1	3:1	10:1	6:1
4.	Gear cutting	8:1	6:1	4:1	3:1		6:1
5.	Drilling; deep	10:1	7:1	5:1	4:1	12:1	7:1
6.	Milling	10:1	7:1	5:1	4:1	12:1	7:1
7.	Boring; multiple head	12:1	9:1	7:1	5:1	15:1	9:1
9.	Drilling	15:1	12:1	9:1	6:1	20:1	12:1
9.	Planing, shaping	15:1	12:1	9:1	6:1	20:1	12:1
9.	Turning; single point tool, form tools	15:1	12:1	9:1	6:1	20:1	12:1
10.	Sawing; circular, hack (Least severe operation)	15:1	12:1	9:1	6:1	20:1	12:1

Grinding: 1. plain—not used
2. form (thread, etc.) —not recommended.

*Machinability rating based on 100% for cold drawn Bessemer screw stock (Specification B-1112).

Protection against rust from moisture commonly absorbed by extreme-pressure-compounded cutting fluids is assured by the use of Calol Cutting Concentrate—EP. In addition to compounds giving it an unusual extreme pressure potency, Calol Cutting Concentrate—EP contains a special rust inhibitor. This inhibitor prevents moisture from corroding machine tools and work.

Calol Cutting Concentrate—EP will adequately lubricate and cool tools and work in the most severe metal-removal operations — deep tapping, blind-hole tapping, etc. It may be used undiluted, but for most operations it is blended with Calol Mineral Cutting Oil—100. Its viscosity is such that it mixes readily at ordinary temperatures. For the latest machining information, write for the free booklet, "Calol Cutting Fluids."


FLOWS BACK INTO PLACE AFTER LOAD HAS PUSHED LUBRICANT FROM RUBBING SURFACES
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Calol Pinion Grease—1. For medium-speed exposed gears. Much heavier and slightly more adhesive than No. 0.

Calol Pinion Grease—2. For open spur gears in normal conditions. Requires some heating for application.

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ATOMIC PROJECT AS A FACTOR IN WESTERN INDUSTRIALISM

Hanford Engineer Works in Eastern Washington, Most Costly Of All War Facilities, Must Be Considered for Peace-time Possibilities

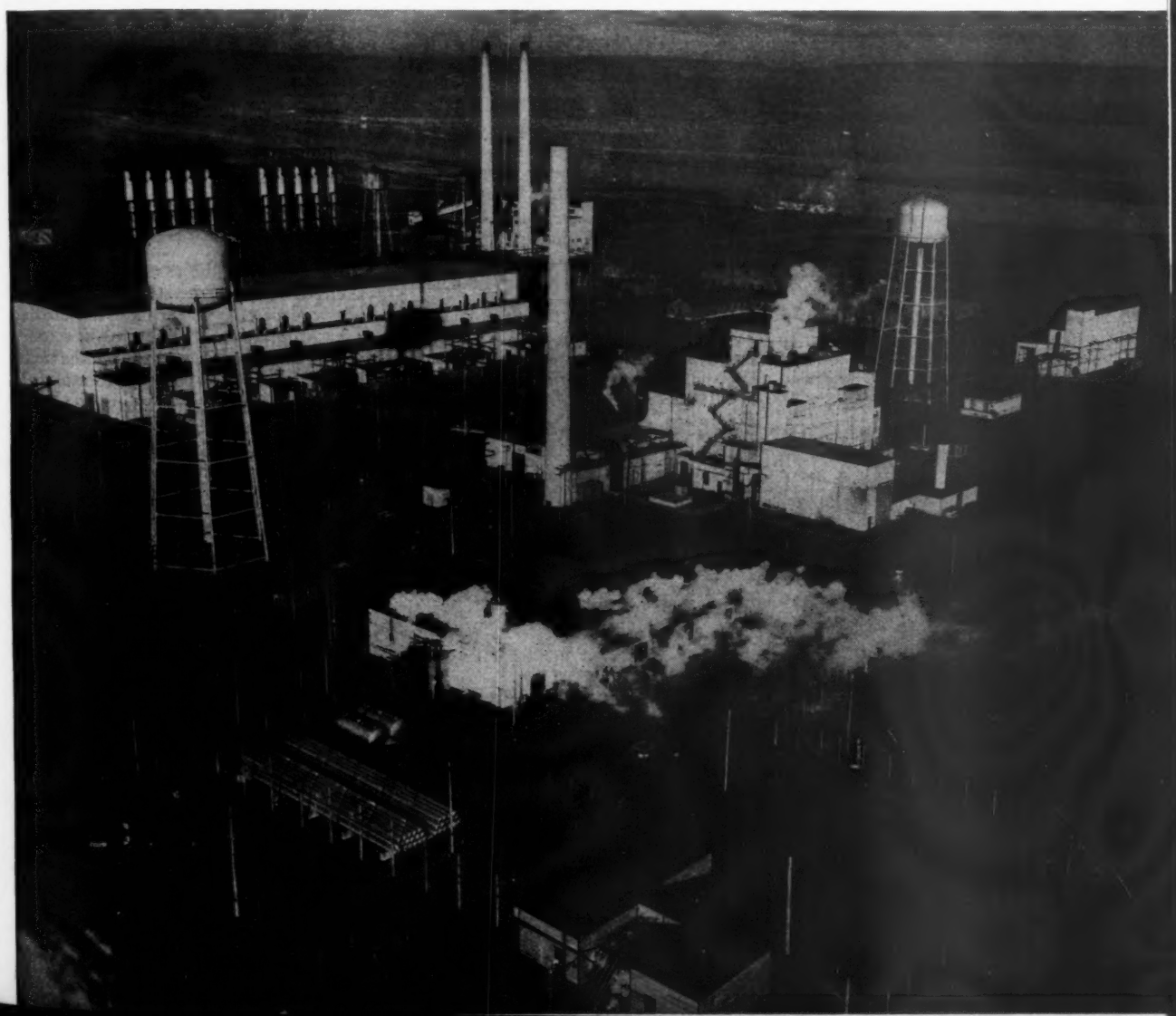
WHO CAN say whether the Hanford Engineer Works, breath-taking in concept and purpose, and costly beyond all our Western steel, light metals, shipbuilding and aircraft plants — $384,000,000 exclusive of the land involved—will be a factor in the peace-time economy of the West? Or the companion laboratory in New Mexico in the production of atomic bombs?

Until constructive instead of destructive methods of harnessing this new form of material energy are translated into practical form, these two operations will only be in the West, and not truly of it.

They will draw from it water and hydro-electric power, but will give back nothing except money for the power used and a moderate amount of employment. Even this slight addition to Western industrial economy may dwindle away to almost nothing if the operations are shut down to a military stand-by basis.

But this expectation is too negative for a world that has learned through "blood, toil, sweat and tears" that the desire for destruction can be put under control, even

• This is just one of the units in the $384,000,000 atomic bomb project near Pasco, Wash., showing Columbia River in the background.



if controlling it involves unloosing more fearsome methods of destruction than have been dreamed of before. So, with peace at hand, it becomes sensible to look for the constructive uses of this atomic energy, whatever they may be, and about which predictions are constantly being aired.

Still another equation will have to be solved, whether the government control of the processes which all connected with this historic enfoldment agree is necessary and inevitable, can be geared to a private enterprise economy.

Private Enterprise or Not?

Can the protection of all right-thinking mankind be assured, and yet at the same time an intelligent and diligent private enterprise be allowed to reap the fruits of its labor and vision in utilizing this discovery for peaceful industrial development? And if not, have we reached the state where government enterprise will produce satisfactory results on such a huge scale, or will it become a slow-moving organization where individual incentive wastes away to a shadow and industrial progress be subjected to the uncertainties of politics?

Perhaps the answer is that individual initiative and incentive never can be suppressed, and that in due time new processes for harnessing atomic energy will come to light and find their beneficial economic place naturally.

Although the army and civilian officials at the Hanford project either frankly disbelieve in any peace-time future for it except as a military stand-by, or else decline to conjecture, *Western Industry* must get one more piece of speculation off its chest before coming down to earth. The question is this: Is the project logically situated for peace-time development?

Here again military secrecy about the process and the product seems to stand in the way of a satisfactory answer. Supposedly the safety factor would make it impossible to move this operation nearer to the point of consumption. The question then arises whether this would necessitate industrial enterprises utilizing atomic energy to come to the Hanford area, or perhaps to the vicinity of Los Alamos, New Mexico, where there is a laboratory unit about which still less has been released.

And now for ordinary facts. Availability of electric power, water and plenty of wide-open spaces, plus remoteness from possibility of bombing attacks, determined the selection of the Hanford site. It is understood that a location in California also was considered. Bonneville supplies the power here, and the Columbia River the water.

The name Hanford comes from a small farm center in eastern Washington some 40 miles up the Columbia River from Pasco. It was engulfed in the project, the settlers being bought out and most of the orchards abandoned. Replacing it, a temporary construction town housing 60,000 people at the peak grew up in two years, but now it is only a ghost town.

To house the regular operating force, a new government-built village was built at Richland, about 12 miles from Pasco, the former tiny cluster of stores and homes called Richland being torn down and moved away. Pasco is a railroad center through which the project is reached. Richland's population is given as 15,000, composed entirely of people connected with the project and their families.

The government purchased 233,000 acres of land, most of it only fit for grazing without irrigation, and leased about 167,000 acres more, the outside perimeter being 192 miles. It extends up the river for some distance beyond Hanford and down-river through Richland.

Army photographs accompanying this article throw more light on the type of industrial operation involved than can be had in a personal visit to the site. Writers, (including *Western Industry's* editor), radio men, congressmen, army officers and other authorized visitors who streamed in for many days after President Truman suddenly lifted the curtain on the best-kept military secret of the war, could only see the structures from the distance of a mile or more—and then through a high wire fence. Here was one event where the cranking of the news reel camera was conspicuously absent.

An Impressive Sight

Yet no aerial photographs supply the atmosphere of remoteness from civilized activities, of the silent functioning of some vast plan, of mysterious fenced-off groups of buildings five to ten miles or more apart in the sagebrush wilds of this part of eastern Washington, of operations going on behind the distant outlines of huge rectangular concrete structures 800 feet long.

Here, you are told, enormous quantities of materials are handled through many successive processes, with no human eye ever seeing what actually goes on, except through a complicated series of dials and panels that enables the operators to maintain perfect control of every operation at all times.

Not only is the processing control indirect, but the observation also, an entirely new departure in chemical manufacture. Each operation is performed in a remote cell, and when it is completed the treated material moves on invisibly to the next cell.

The manufacturing area is subdivided into three huge areas, and each of these three in turn is again subdivided into sections covering miles of ground. One of the three main areas contains three enormous structures where material is produced. The second area contains three huge chemical plants where the material is purified and concentrated. The third prepares the raw materials.

Not only was it necessary to develop an entirely new chemistry for concentrating this material, but plants had to be designed for performing all the complicated operations involved by remote control, behind heavy concrete walls to protect the workers completely against even the fear of danger.

As the published pictures of the Clinton unit in Tennessee indicate, the exterior appearance of that installation is considerably different from Hanford. Comparisons of the size of Hanford and Clinton

• Here are the men who run the Hanford show. From left: G. P. Church, construction project manager for Du Pont; General L. R. Groves, in charge of the entire national bomb project; Colonel F. T. Matthias, area engineer and commanding officer; Lieut. Col. B. T. Rogers, deputy area engineer; Walter O. Simon, Du Pont's plant manager.

were not available at this writing, nor of the volume of their output, nor which was completed first.

The construction and operating contract for the entire Manhattan Engineer District, the "cover" name for the complete atomic bomb project, is something entirely different from other wartime arrangements between the government and private industry.

E. I. du Pont de Nemours & Company were called in by the government to construct and operate the units because their outstanding experience in chemical and explosives manufacture made them the logical choice. Some adequately qualified organization had to translate the results of the theoretical scientific research carried on under the auspices of Chicago University into working formulas, processes and equipment.

Du Pont's contract is cost-plus-fixed-fee, and the fee is $1. All the bills are paid directly by the government, and formulas, equipment and everything else belong to the War Department. Sub-contractors get their money directly from the government, not from the prime. Only the subs were in a position to make any profit.

Know-how and the services of some of its best men were supplied by Du Pont, but Du Pont gets nothing in return except for the enrichment of the experience of these men.

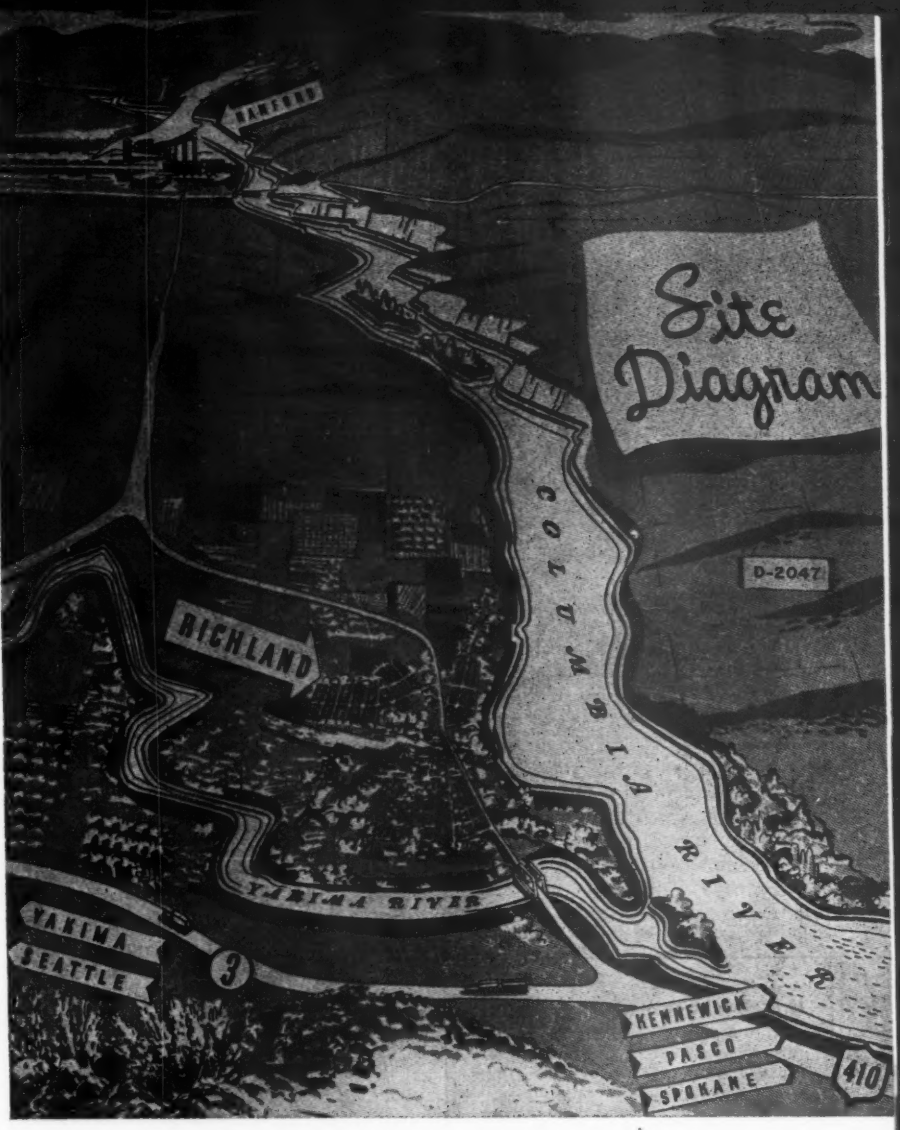
Government Got Patents

"Du Pont agreed to undertake the task under two conditions," President Walter S. Carpenter, Jr., notified Du Pont stockholders. "First, that there would be no profit for Du Pont in the project; second, that any patent rights developing out of the work should become the property of the United States government.

"The specific responsibilities assumed by the Du Pont Company were to engineer, design, and construct a small-scale semi-works at the Clinton Engineer Works in Tennessee, and to engineer, design, construct, and operate a large-scale plant at the Hanford Engineer Works in Washington. * * *

"In the time and with the information available, the Clinton semi-works could not be designed to be an early edition of the Hanford production units, as would have been the normal procedure. Therefore, the Hanford units had to be designed, constructed, and operated without major guidance from Clinton experience. However, the Clinton semi-works proved to be an extremely important tool in the solution of the many completely new problems encountered at Hanford."

Colonel Matthias rather facetiously explained to the fact-starved newsmen that the government had disallowed 32c of the $1, and so many newspapers and radio stations have publicized this summary "docking" of Du Pont that it would hardly be fair to spoil such a good story at this late date. Maybe Du Pont actually was docked . . . could be!



Contrary to what has happened to United States Steel, Aluminum Company of America and some other large corporations, the war operations and the speed-up in Western industrial growth, at least so far, have not served to project du Pont into the Western postwar industrial picture. If peace-time applications of the atomic process develop, it may be a different story, but if not, the time may come when du Pont will feel that its men are needed more greatly elsewhere than in caring for a military stand-by.

But don't let anyone tell you that either these du Pont men or the Army Engineers group who operate the Hanford project have not felt the pull of the West's new industrialization for those of pioneering spirit.

From first to last, from scientists to army officers and chemical engineers and physicists, the atomic bomb development became an undertaking toward a single end—victory in the war. Walter O. Simon, the head Du Pont man at Hanford, feels that it is something which should remain in government hands, as entirely too big for any one corporation or other private organization.

The War Department assigned the atomic bomb effort to the Corps of Engineers, with Major General Leslie R. Groves as the officer in charge. His assistant is Brigadier General Thomas F. Farrell, while Colonel Kenneth D. Nichols is the district engineer of the Manhattan Engineer District, in direct personal control of the Clinton Engineer Works and also supervising the Hanford Engineer Works.

Colonel Franklin T. Matthias is area engineer for Hanford, a University of Wisconsin graduate with a background of TVA and other engineering experience. Lieutenant-Colonel B. T. Rogers, deputy area engineer officer, has had immediate charge of construction work.

Mr. Simon is a Swarthmore graduate whose career has been with Du Pont. Just

previous to transfer to Hanford he had been associated with the manufacture of RDX, used in the "block busters" dropped on Germany.

Construction difficulties were greatly intensified by two outstanding factors, the time element which demanded that construction proceed without awaiting completion of engineering design or even of the basic research data, and the extreme requirements of military security. When the process was first discovered in March, 1941, leaders in chemistry feared that it might take at least five years to develop the chemical methods involved.

Because no more than microgram (one-millionth of a gram) amounts of the material could be made by methods then available, it became necessary to work on an extremely small scale of operation, namely, the so-called "ultra-micro scale." On the basis of these "bits of nothing," the chemical plants were constructed ten billion times greater in scope.

This meant that the chemicals involved had to be used in quantities of micrograms and fractions of micrograms, within a limit of 3 per cent of one microgram. A human breath weighs about 750,000 micrograms, while a dime weighs 2,500,000 micrograms. To achieve this unheard-of accuracy in weight, special high sensitivity laboratory equipment had to be built.

Milligram amounts became available in January, 1944, and two months later gram scale experiments proved possible, while in July, 1944, experiments on a ten-gram scale were begun at the New Mexico site. After that the scale became substantially larger.

A pilot plant was built on the basis of ultra-micro scale procedures at the Clinton Engineer Works, and the chemistry further developed there. Chemical plants costing many millions of dollars were thus designed, constructed and put into successful operation on the basis of this early work with only micrograms, and it is the first time that a scale-up of anything near this amount has been accomplished in an industrial development.

Secrecy and urgency of the work also caused many manpower complications, about which various reports have circulated through the West. For example, on June 1, 1944, the shortage of electricians at Hanford and Clinton became so acute that work schedules were seriously endangered. To recruit 2500 electricians, a plan of borrowing them from other contractors for a period of 90 days was worked out with the National Electrical Contractors Association and the president of the International Brotherhood of Electrical Contractors. In two months the bottleneck was broken and the plan was continued throughout construction.

Late in 1943 there was dire need of machinists and toolmakers, 190 of them being needed at the New Mexico installation alone. War Manpower Commission then authorized its regional directors to certify certain workers as available to the Manhattan Engineer District even over the protests of employers engaged in other essential war programs. Armed with this authority, special recruiting teams procured the workers in one month.

The usual conditions of turnover and absenteeism caused by the lack of housing and other facilities, common to so many of the war-time facilities in the West, were present here also and were gradually worked out through the same remedies that have been applied elsewhere.

Magnitude of the construction work is indicated by a few of the items, as follows:

554 process and process-serving buildings were erected, exclusive of administration and other service facilities.

25,000,000 cubic yards of earth were excavated, equal to approximately one-fourth of the earth moved in the construction of Fort Peck Dam, the largest earth dam ever constructed.

40,000 carloads of material were received, equivalent to a train 233 miles long.

784,000 cubic yards of concrete were poured, and about 1,500,000 concrete blocks and 750,000 cement bricks used.

Concrete foundations were built to support 12,000 lbs., compared with the customary 4,000 lbs.

158 miles of railroad were built, 123 miles of it permanent, and 345 miles of permanent plant highways.

1,600,000 board feet of lumber were used, and 11,000 poles for power, light and telephone.

20,000 tons of structural steel, 20,000 tons of reinforcing steel also went into the job while stainless steel delivered totaled more than 220 carloads.

More than 8,500 pieces of major construction equipment were used.

Atomic Laboratory Is in New Mexico

The Atomic Bomb Project Laboratory is located at Los Alamos, New Mexico, on a mesa an hour's drive from Santa Fe, and the nearest railroad facilities are at Santa Fe and Albuquerque. Primary reason for the selection of this isolated site was security, and when the Army took over the property early in 1943 there were only a few buildings occupied by the Los Alamos Ranch School and an entirely new town had to be built, which now has more than 6,000 residents.

Scientific groups which had been working on the project elsewhere in the country moved in rapidly, bringing their equipment with them, and the Harvard cyclotron was in operation six weeks after it had reached the site.

Dr. J. R. Oppenheimer, professor of physics at the University of California and California Institute of Technology since 1929, is the Director of the laboratory. Before the war he was one of the leading scientists engaged in investigations of atomic structure and of the nuclear energies released by atom-smashing. He was one of a group which discussed the possibility of an atomic bomb in the fall of 1941, and under his leadership the largest concentration of top scientists ever assembled in one place solved a problem which under normal conditions would have taken generations.

Colonel Gerald R. Tyler is military commandant at Los Alamos.

Atom Uranium From Colorado and Utah

Western Colorado and eastern Utah evidently have been one of the sources of materials to make the uranium used in the manufacture of the atomic bomb. The area is called Paradox Valley and the material is vanadium, mined in the valley and processed for the U. S. Vanadium Corporation at Rifle, Uravan and Durango, in Colorado, for the Vanadium Corporation of America at Naturita, Colorado and Monticello, Utah, and four or five smaller companies.

Vanadium has been principally used as a metal-hardening alloy, but about three years ago a military security program invoked by the War Department and still in effect put a news blackout on the work the men were doing in Paradox Valley. It became known, however, that roads were built into inaccessible regions of the valley, that unnamed new settlements grew up overnight and that new diggings were started.

White Collar Workers Up Wage Earners Decline

While the number of wage earners in California manufacturing industries in 1944 dropped 7.7 percent below the figure for 1943, the number of executive, professional, technical and clerical workers in the same industries soared 4.1 percent above the 1943 annual employment averages, according to figures released by the California State Chamber of Commerce.

For those who might feel that the rise in the professional, executive, technical and clerical brackets, paralleling the decline in the numbers of wage earners, was brought about by heavily increasing amounts of paper work necessitated by the demands for government reports, a comparison should be made with the figures for 1939.

Compared with the figures for 1939 those of 1944 show that the average employment for the latter year were 198.4 percent above those of the closing year of the past decade. In the same year, the upper brackets of manufacturing personnel were only 126.7 percent larger than those of 1939.

Greatest personnel decrease to be experienced in 1944 occurred in the production of non-durable goods where there was an 11.4 percent decline. In part, however, this was offset by an increase of 6.2 percent among those employed in the manufacture of non-durable goods.

West Rides Steady Keel Under Impact of Peace

INSTEAD of any stoppage in activity or a deluge of unemployment in the West, the immediate effect of the sudden ending of the war has been the opposite. Despite the cancellation of shipbuilding, aircraft, ordnance and other war contracts, the tight labor market has continued. Industries able to return immediately to civilian production are continuing at the same or greater rates of activity than before, while others are beginning to announce future plans.

Naturally there has been a sudden rise in the number of people leaving the area, but on the other hand the incoming traffic by automobile has risen also. Demands for unemployment compensation have increased, but not to an alarming extent yet, and the strength of the funds in the various states shown in the accompanying table is ample proof that there is no immediate problem of relief. Every one of the eleven Western states is better fortified as regards unemployment compensation than is Michigan.

The peak of wartime employment was reached, not at the culmination of the war, but at the end of the summer of 1943, and the reduction of the labor force has been gradual ever since then. Shipyards were notified of the conclusion of the program many months ahead so both management and labor had time to prepare.

Actually an acute shortage in various skills a few months hence is expected by the War Manpower Commission and the U. S. Employment Service, because of industrial activity calling for skills not in use in war plants, where one-skill operators were trained for the immediate job. Cancellation of the various training programs which were so plentiful while the war was going on has left the West without any means of meeting this prospective demand.

The U.S.E.S. is expected to continue to serve as a distributing system for labor demand and supply throughout the West over and above the functioning of individual company employment and private employment agency operations. War Manpower also hopes to keep the Labor-Management committees functioning to help prevent reconversion bottlenecks and to analyze future employment problems.

The tremendous per capita increase in wealth in the area in the war period is indicated in Federal Reserve Bank figures for the 12th district, comprising the three Pacific Coast states, Arizona, Nevada, Idaho, and Utah. They show that liquid assets of firms and individuals jumped from $5,706,000,000 in 1939 to $20,000,000,000 in 1944 of which $14,100,000,000 belonged to individuals and $5,700,000,000 to firms. The population increase from April 1940 to November 1943 was only 11 per cent, or 1,300,000. In 1939 the total population was 11,362,000, in 1943 it was 12,709,000.

Only 6 Keels

Although there are only six keels remaining to be laid in the Maritime Commission shipbuilding program in West Coast yards, three in September, two in October and one in November, 98 ships were still under construction at the end of August and some of the Maritime yards have much repair work also.

Naval activity is the big carryover into the peace period. Admiral R. E. Ingersoll, commander of the Western Sea Frontier, reports that there is still a tremendous supply problem in connection with the overseas forces and that even when most of the personnel and supplies have been returned to this country there will still be a tremendous job in the overhauling, reconverting and maintaining of the largest Navy and Maritime tonnage in the world.

Only four production contracts for Army Ordnance in nine Western states remain in effect. These are the Richmond, Calif., tank depot operated by Ford Motor Company, two contracts with Norris Stamping & Manufacturing Company of Los Angeles for 90 mm and 75 mm cartridge cases and one with Gillig Bros. of Hayward, California, for passenger buses. In addition to these four, several contracts for research and development remain in effect. The largest cancellations were with Kaiser at Fontana and Denver for shells and fuses.

Food production is set for another year or two of high level production. Although the armed forces have reduced their requirements for processed foods, distributors' stocks everywhere are down to the lowest point in history, and it is estimated that it will take nearly two years to bring the supply up to a normal level.

Agricultural machinery is active, there is a strong demand for machine tools from the surplus stocks of the Reconstruction Finance Corporation and oil companies expect to increase their employment. Automobile assembly operations are due to be greater than prewar, with General Motors announcing a new Southern California project and other manufacturers enlarging their activities, while an entirely new operation is in prospect in the Kaiser-Frazer plan to manufacture complete automobiles on the Pacific Coast.

Aircraft

Aircraft cutbacks have resulted in some large layoffs in the Southern California area, but there is still a large amount of construction going on. Although Boeing has closed its Renton plant, the company

PRELIMINARY ESTIMATE OF EMPLOYMENT CHANGES

War Manpower Commission, Region XII—Calif., Oregon, Wash., Ariz., Nevada

(in thousands)

	Peak Aug. 1943	Reported distribution April 1940	Released from war work by Aug. 1945	Oct. 15 1945	Dec. 15 1945	Probable distribution by Oct. 15 1945	Dec. 15 1945
Total labor force	6,050	4,400	6,047	.....	.....	5,807*	5,772
Armed forces	850	54	1,073	—90	—250	983	823
Civilian labor force	5,200	4,346	4,974	.....	.....	4,824	4,949
Employed, total	5,100	3,714	4,846	.....	.....	4,421	4,511
Manufacturing, total	1,680	491	1,268	—480	—550	821	811
Aircraft	340	43	213	—135	—155	78	58
Ship construction, excl. repair	550	20	226	—145	—180	81	46
Other war products[1]	270	....	242	—200	—215	42	27
Other manufacturing	520	428	587	.....	.....	620	680
Non-mfg., total	3,420	3,223	3,578	.....	.....	3,600	3,700
Unemployed†	100	632	128	.....	.....	403*	438*

[1] Only the war production subject to cancellation and layoffs; excludes the ship repair, consumers' goods production, etc.., in which no employment maladjustment is anticipated. Such industries here are classed as "other manufacturing."

*Assumes 50% of laid-off war workers (or an equivalent number) leave the region or retire from labor market by December 15. In other words, this assumes that 20% of the "abnormal" wartime increase in the labor force (1,300,000) will have disappeared by that time.

†Includes turnover figures, such as between jobs, ill, vacations, etc.

STATUS OF WESTERN UNEMPLOYMENT COMPENSATION FUNDS

(Figures from Federal Social Security Board)

State	Total amount in fund as of March 31, 1945	Number of weeks for which compensation is paid	Percentage of total No. of unemployed workers who could be paid for maximum duration as of Jan. 31, 1945 if fund were entirely used up
Arizona	$ 17,440,000	14	98.5
California*	734,000,000	23	72.1
Colorado	31,628,000	16	90.3
Idaho	13,284,000	17	76.3
Montana	16,482,000	16	109.2
Nevada	9,298,000	18	106.6
New Mexico	8,954,000	16	79.0
Oregon	65,146,000	16	122.5
Utah	23,153,000	20	57.4
Washington	133,065,000	26	96.0
Wyoming	7,321,000	16	91.7

*California figures as of August 1, 1945.

Editor's Note: Michigan's percentage is 43, considerably lower than any state in the Far West.

expects to have a peacetime force of 15,000 employees, three times greater than in the prewar period.

Where much of the unemployment slack may be taken up eventually is indicated in the report from the Los Angeles area that 43 eastern and midwestern manufacturing companies are purchasing property during the war for the purpose of erecting their own plants. A similar strong demand for industrial sites has been reported in the San Francisco Bay area and elsewhere on the Pacific Coast.

The situation in regard to steel and aluminum is reported on another page in this issue. Kaiser's postwar activities include use of Liberty ships to bring gypsum from Marcos Island, off Lower California, to his plaster board plant in Long Beach. At a Mead Committee hearing in San Francisco he sharply criticized the government for its delay in making plans to sell its ships.

Kaiser said he wanted to buy six of them, and that the largest manufacturer of building supplies in Chicago wanted to build a plant adjoining the Kaiser plant at Long Beach. Kaiser further reported that he would bid for building 18,000 railroad cars to be built of aluminum before next January if the government would reach a decision about use of the shipyards.

The RFC's gigantic stock of surplus equipment and materials is beginning to move in small quantities. Regional offices report that they are in a position to expedite its movement by acting as an information bureau, locating machines or supplies that are still in the hands of war contractors before they are officially declared surplus, and assisting buyers to purchase direct from the contractor, with the approval of the terminating officer. They also thus assist the contractor to cut down his claim inventory before going into termination proceedings. RFC also has a new activity in arranging with contractors for plant-site storage of usable goods, to avoid the cost of moving to government-owned warehouses.

One objection to the present set-up on used equipment was raised at the Mead Committee hearing in San Francisco by E. C. Griffiths, manager of the Central California War Pool. He said the smaller operators should be allowed to bid on smaller quantities of the present large lots of materials for machine tool operations, and also complained that small plants have used up their prewar machinery in war production without any compensation from the government, leaving them without further use for equipment that in peace times would be good for 15 years more.

Report on Douglas Fir Plywood Outlook

A report on the plywood situation as a result of the government's order rescinding all limitation on orders of plywood has been given out by W. E. Difford, managing director of the Douglas Fir Plywood Association and Fir Door Institute. Mr. Difford says:

"It now appears that any future government orders will be handled under general priority PR29 dated June 13, 1945, the balance of production immediately moving into peacetime channels. Under limitation order, approximately 35 per cent of all government orders will be allocated to 325 distributing warehouses selected by the War Production Board. This percentage, which formerly could be released only for direct war uses, now can immediately be transferred to retailers' inventories.

"Jobbers not now qualified under present WPB allocation order may place their orders with plywood mills and these orders will be processed in the order of their acceptance. The estimate of present inventory in distributing warehouses totals thirty million square feet; inventories in all jobbers' warehouses back to normal is 200 million square feet.

"Since plywood has been virtually eliminated from dealers' inventories, it is expected that jobbers' stocks will move to dealers in steady flow until all dealers have some inventory available. However, it is obvious that it will be some time before dealers' stocks reach normal prewar levels although with the expanded capacity of the plywood industry, this may not take as long as has been pessimistically predicted prior to V-J Day.

"Surveys have shown that dealers anticipate carrying postwar inventories of plywood that will average a hundred per cent higher than prewar stock requirements. Industry advocates that jobbers and dealers place orders for requirements with regular sources of supply immediately. Cancellation of government lumber contracts means that the supply of ship lumber should immediately be easier and production of fir doors therefore should improve somewhat."

U. S. Western Air Plant Investment 7% of Total

Investments by the federal government in aircraft production facilities involving authorized land, building and other costs in plants costing in excess of $5,000,000 amount to only seven per cent in the eleven western states of the total amount invested by the government on a national scale.

Sums so invested by the government in plants in the eleven western states are less than $78,000,000. The total amount invested nationally is over $1,168,000,000, according to figures published in a U. S. Senate pamphlet "War Plants Disposal: Aircraft Plants."

Following are the investments in the eleven western states: Boeing Aircraft, Renton, Wash., $16,839,000; at Seattle, Wash., $7,821,000; Consolidated Vultee Aircraft Corp., San Diego, Calif., $16,362,000; at Tucson, Arizona, $5,594,000; Douglas Aircraft Company, El Segundo, Calif., $8,136,000; at Long Beach, Calif., $16,573,000; Lockheed Aircraft Corp., Burbank, Calif., $6,151,000.

Largest Troop Carrier

Powered by six pusher type engines and with an over-all length of 183 feet, the world's largest troop carrier, land-based airplane is now under construction at Consolidated Vultee Aircraft in San Diego for the Army Air Forces. Designated the XC-99 the new transport as a cargo plane will be able to carry 100,000 pounds over a distance of 1,500 miles.

Firms Urged to Get Surplus Property Lists

Western industries contemplating postwar expansion or broadening of prewar production activities are urged to shop surplus sales offerings of the Reconstruction Finance Corporation more closely, according to an announcement by John S. McCullough, Jr., manager of the corporation's San Francisco office.

With quantities of surplus machinery, machine tools, handling and special purpose equipment available through the five Surplus Property Division units of the West located at Seattle, Portland, San Francisco, Salt Lake City and Los Angeles, Western businessmen will find many opportunities in the surplus property market, McCullough said.

First step is for potential buyers to get their names on perpetual mailing lists within the categories in which they are interested. Necessary forms are available at all R.F.C. offices and at many regional Chamber of Commerce offices.

FOREIGN TRADE SECTION BEGINS NEXT MONTH

With the end of the war foreign trade has become a matter of prime significance to both Western industrialists and labor.

While domestic trade and the production of goods for sale within our borders will continue to be the most important consideration of industry throughout the entire country, foreign trade with countries hungry for American machinery and goods will be of vastly greater importance than ever before.

Here in the West, the effect of demands of foreign markets upon our new industrial empire will be considerable, to put it mildly.

Accordingly, *Western Industry*, beginning with its October issue, will carry a section on foreign trade as it affects the West in order that its readers may have a full picture of Western industrial development and those matters most significantly acting upon it.

Those on the mailing lists will be regularly informed on offerings and told where the goods can be inspected. For any goods offered that have not been priced, negotiations on price may be conducted by buyers immediately after inspection.

Scrap Aluminum Recovery Hits High

Recovery of aluminum from scrap in 1944 rose to 325,645 tons valued at over $93,000,000 for an all-time record. A contributing factor in the increase lay in the enormous supplies of industrial scrap made available for war production activities. Continued use of large quantities of scrap in production of wrought aluminum resulted from adoption of simple methods of marking sheet, tubes and shapes with the alloy number, thus greatly facilitating the identification of alloy types.

During May production of remelt aluminum alloy ingot rose four per cent to 20,157 short tons. In the same month recovery of aluminum alloys from scrap came to 18,810 tons.

• One of the largest boring mills in the West is this at the U. S. Naval Drydocks machine shop on Terminal Island, Southern Calif.

RFC Fontana Plan Presages All Business, No Sentiment

ALL THE fairyland pictures painted by some government officials of encouraging small business, selling war plants to small concerns on long term credits in preference to turning them over to big corporations for cash on the line, decentralizing industry and giving the West its chance to grow, apparently are nothing but smoke-screens.

The action of RFC in refusing to scale down the Fontana steel mill loan evidently is an indication that the government has no promotion ideas in mind at all, but simply is interested in getting as much money as it can out of its war-time investments in manufacturing facilities. If Westerners in Congress kick up enough fuss, there might be some deviation from this policy, but probably not much.

Interpreting its action on the Fontana loan as the first step in getting full price wherever possible, then the Reynolds Metals aluminum reduction plant at Longview, Washington, and other war-time plants built on RFC loans would fall in the same category.

Question of Consistency

Whether this would apply to Defense Plant Corporation facilities, owned by the government outright, might be a different question, because the government here would have to negotiate with the highest bidder and might not be able to realize full value. Geneva and the Alcoa-operated mills in the Pacific Northwest, aircraft plants and others would be in this category.

But here the government would lay itself open to accusations of discrimination, if war-time costs were scaled down for Geneva and the Alcoa-operated aluminum plants and not for Fontana and Longview. All this would be undoubtedly fully aired in Congress.

The possibility of a scaling down on the Geneva price to $125,000,000 has been indicated in Washington news dispatches, which name that amount as the reproduction figure given in the Arthur G. McGee report. United States Steel's decision not to bid on Geneva was partly based on the statement of President Husbands of DPC that under the present law DPC has authority only to lease the Geneva mill for not more than five years without an option to purchase.

RFC's action on Fontana obviously is an indication of belief in the industrial future of the West, that the market is good enough to warrant continued operation of this steel mill and that heavy industry is not just a war-time matter for the West.

Here is the Western postwar steel situation as it shaped up at the time this issue of *Western Industry* went to press:

1. With United States Steel Corporation declining to bid on Geneva, the chances of that big mill continuing to operate in the immediate postwar period seem remote. Kaiser and Colorado Fuel & Iron Corporation are endeavoring to figure out how they could utilize Geneva separately or jointly but at this writing had no satisfactory answer.

2. U. S. Steel will install cold reduction facilities having an annual capacity of more than 325,000 tons of cold reduced sheets and tin plate at Pittsburg, California, a $25,000,000 investment.

3. Fontana will remain in Henry J. Kaiser's hands, with good prospects of his being able to pay out on it over a long period. The refusal of RFC to scale down his loan to compensate for war-time construction costs seems to indicate that they believe he has a good property and therefore they can make him pay through the nose and still hope to get all their money back.

4. Kaiser's expansion at Fontana, under the $11,500,000 financing granted by RFC, will provide for installing butt weld and electric weld pipe mills, modifying the plate and structural mills to permit production of wide flange beams and remedying defects in the original construction of the plant. But the strip mill and other facilities are out.

5. Bethlehem is not interested in Geneva, and has denied rumors that it will build a strip mill at San Pedro, California. President Eugene Grace says Sparrows Point can compete for West Coast business as cheaply as either Geneva or Fontana.

6. Steel prices will not be any cheaper, because Kaiser's heavy load of indebtedness will not give him any leeway to cut prices below the level set by the present basing point system.

7. It is understood that the Arthur G. McKee study of the Fontana and Geneva operations, to be presented to RFC in September, will show production costs at both mills to be about the same, consequently Geneva would not be in a position to compete for business on the Pacific Coast without a freight rate reduction.

Heavy Fontana Load

RFC's Fontana plan indicates that the Kaiser Corporation would have to earn about $5,500,000 in order to meet the fixed charges. This would amount to $11 a ton on 500,000 tons of steel annually at a selling price of $55 to $60 a ton. It would make Fontana perhaps the most heavily capitalized steel mill in the country.

The McKee report is said to have indicated that Fontana should earn $5,500,000 yearly if operated at 60 per cent of capacity, exclusive of depreciation and income tax, but if the operating rate rose to between 80 per cent and 100 per cent the earnings would rise to approximately $10,000,000.

Present reproduction cost of Fontana has been figured by the McKee firm at $63,000,000, but depreciation reproduces the present value to $58,000,000.

News reports summarize the RFC proposition as follows:

A 15-year 4 per cent first mortgage of $69,500,000, which represents $58,000,000 sound value of the present fixed assets plus the new improvements and plant additions.

A 25-year second mortgage for $34,510,380, without interest, representing the balance of the original loan invested in fixed assets, and a $10,318,000 note secured by 103,180 shares of 4 per cent first preferred stock of Kaiser Co., Inc., having a par value of $100 a share.

HIGHLIGHTS ON LIGHT METALS

Plans for disposition of Pacific Northwest light metals plants should be sufficiently crystallized by September 5 so negotiations for their lease or sale can be undertaken, according to Senator Mitchell of Washington. He said responsibility for delay in establishing a disposal program is basically that of the Surplus Property Board, which was instructed by Congress on October 4, 1944 to adopt a definite aluminum industry report not later than three months after that date.

Reynolds Metals Company submitted an offer at the Mead Committee hearing in Spokane August 22 to operate government-owned aluminum plants under lease with a view to acquiring, for one-half the rate currently paid Aluminum Company of America, i.e. one-half the amount paid Alcoa as indirect overhead plus one-half the profit Alcoa receives under existing leases. M. M. Caskie, vice-president, said Reynolds was "definitely interested in leasing and ultimately acquiring" the Troutdale, Oregon, Mead (Spokane) and Jones Mills, Ark., reduction mills, either the Trentwood (Spokane) or McCook (Chicago) rolling mills and either the Hurricane Creek, Ark. or Baton Rouge, La., alumina plants. Alcoa takes 15 per cent of the profits but does not share in losses.

D. K. MacDonald, chairman of the Western States Council light metals committee, demanded that Alcoa relinquish its two-year lease on Trentwood and agree not to bid on Hurricane Creek, because the interests of the Northwest demand that competition should be preserved.

Kaiser representatives said they would bid for the Spokane aluminum plants, but wanted both or none, and if they got them would roll both aluminum and magnesium and even temporarily steel at Trentwood.

All of the net profits received by the Kaiser Company from ship construction will continue as security for the revamped loan, the RFC said. So far, approximately $14,000,000 has been paid the RFC from Kaiser shipbuilding project profits. Of this, $9,000,000 was applied to the principal of the original loan, the rest to interest.

Of the ship fees and profits received under contracts made before July 1 of this year, 72½ per cent will be applied to the principal of the second mortgage. In addition, 25 per cent of the earnings of the steel division of the corporation —after taxes, interest and first mortgage payments—will be applied to the second mortgage.

Complains, But Stays In

Kaiser Co., Inc., issued a statement protesting vigorously over the RFC terms, saying they made it impossible to provide cheaper steel for the West, but the statement gave no hint of any intention by the Kaiser interests to abandon Fontana. It said in part:

"A first mortgage of $69,500,000 is to be carried by Fontana, representing what RFC declares to be the actual sound value of the present plan, plus new authorized facilities. This factors out as a bonded debt of $92.56 per ton of ingot capacity at Fontana, nearly twelve times bigger than the average $7.60 per ton debt of the steel industry. In order to service and amortize this mortgage, Fontana must earn fixed charges of more than $7.00 per ton of ingot capacity or twice the total per ton earnings of the steel industry.

"On top of this, the RFC release explains, we are to assume further obligations to pay to RFC $44,000,000. This sum apparently represents excess costs above sound value, and must, therefore, include the war costs incurred by Fontana's record construction under wartime conditions.

"The total of fees earned on the operation of the three shipyards at Vancouver, Washington; Portland, Oregon; and Richmond, California, pledged to the financing of Fontana, will probably equal something less than $40,000,000 now that the war has ended.

"We are expected to pay and write off Fontana's war costs not only out of ship fees already earned, but $4,000,000 more on the RFC's estimates, and $35,000,000 more on estimates of Fontana's war costs made by consulting engineers retained by Kaiser Company, Inc. In this connection, we now enter in the public record the estimate of Fontana's war costs made by these engineers, H. A. Brassert & Co. Their figure is $73,600,000."

U. S. Steel Plans

U. S. Steel's modern cold reduction mill at Pittsburg, adjacent to the present facilities there of its subsidiary, Columbia Steel, is the first of its kind on the Pacific Coast.

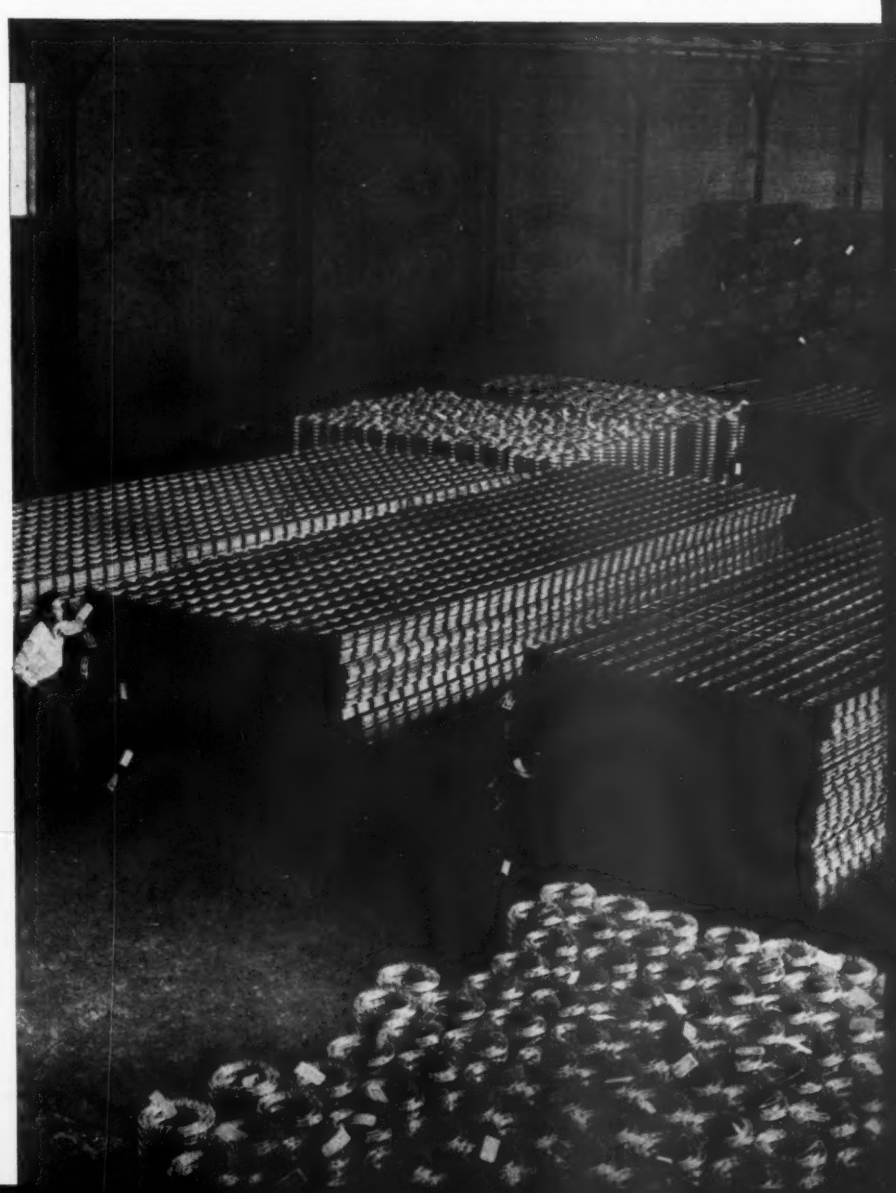
If DPC or the future operators of Geneva decide to manufacture hot rolled coils there, President Fairless announced, U. S. Steel will be glad to negotiate for the purchase of a substantial amount of these coils to be used in producing cold reduced products at Pittsburg. This is, provided determination is made in sufficient time to insure that the coils will be produced at Geneva concurrently with the completion of Columbia's new cold reduction facilities. This would give a sizable volume of steel business for Geneva.

Fairless' letter to President Husbands of Defense Plant Corporation ascribes U. S. Steel's refusal to bid on Geneva to Attorney General Biddle's report and the Surplus Property Board statement on disposal of war plants. "They appear to us in practical effect to rule out United States Steel Corporation as prospective lessee or purchaser of the Geneva plant, although Mr. Symington has since been quoted as saying that a bid from us will be considered." The letter added:

"Under the provisions of the Surplus Property Act, the Surplus Property Board has general supervision over the disposition of surplus property and is empowered to prescribe regulations to govern the disposal of such property, and the Attorney General is required to give advice to the Board regarding the proposed disposition of certain surplus properties. We have no disposition to engage in any controversy with these officials or to contravene their determinations or regulations. However, we deny their allegations or inferences of monopolistic control, and we question the accuracy of the premises on which some of their statements appear to have been based."

Kenneth T. Norris, chairman of the steel committee of the Western States Council issued a statement saying, "It is noteworthy that the withdrawal was not made because of any question as to whether or not the mill is a desirable industrial property * * * Transportation costs on finished steel from Geneva to the coast will have to be adjusted downward from prewar level if Geneva is to operate successfully."

• Welded wire fabric department scene at C. F. & I. steel mill at Pueblo, Colorado.



Western Labor Leader and Industrialist Switch Roles . . .

Neary Speaks:

IF I were a union leader, I would first attempt to determine the exact nature of the organization I represented. Its purpose obviously would be to maintain high standards of living for its members, and the tools for achieving that purpose would be (1) negotiation, (2) the economic weapon of the strike.

My organization, to be successful, must be a monopoly, composed of all the employees of a company or an industry.

Now, what obligations do I have, and to whom? First of all, of course, to my members. I must represent them properly in gaining and retaining high standards of living through wages, hours and conditions of work.

What other obligations do I have? To employers, because the well-being of my company is synonymous with that of the employees. A bankrupt company is not a good employer.

But the most important obligation is to the public, for the public is vitally interested in the maintenance of high standards of living. Consequently the public is concerned with the manner in which I use the tools of negotiation and the strike for attaining these standards, because the public will either be benefited or injured thereby. If used unintelligently, the public is harmed and has the right to concern itself with my use of the weapons.

The union is a monopoly, and history tells us that as soon as a monopoly exists the public has an interest in the situation and always has acted to protect that interest in order that it will not be harmed by dangerous use of that power.

As a union leader, I would be interested in the maintenance of my union as a collective bargaining organization, and would want it to be as free as possible from domination, control or regulation. I would want to have public respect, for fear the public would limit the effectiveness of my organization. We never have restrictions until we abuse power, and the regulation then is often extended beyond the immediate matters at issue.

Strikes

We sometimes may have to resort to economic war—the strike—or the threat of it to achieve our objectives, but it should be realized that all of the disputes which have resulted in harmful use of the strike have come about through failure of both parties to get at the facts. It has been well said that "reasonable minds cannot disagree about facts, they can only agree about them."

In settling wage rates, we should determine the relation between the work of each man and the ultimate price of the product, and the value of each employee's work as compared with that of other employees. Consequently I would urge my union to establish some really original work in research and cooperate with employers to that end. The closer we come to the actual facts in a case, the less chance there is of a dispute.

I would not look forward to governmental regulation as the assurance of the success of my union, for, as Samuel Gompers once aptly said, "I would be fearful of any governmental action, because all you can get from politicians is politics." Regulation imposed from without is the first symptom of decay in unionism.

To avoid any such trend, I would concentrate on economic research, and use the strike only as a last resort. I would be thinking ahead that some governmental regulation is bound to come, since my union is a monopoly, and I should not only acquiesce in reasonable regulation but actually propose it, so that it would not become detrimental to my own interest.

Reversing their ordinary roles, J. Stuart Neary, representative of Management, and John Despol, official of the United Steel Workers, gave members of the Southern California Management Council a chance to see how each side views the functions of the other in its meeting last May. Neary's speech is given first.

Despol Says:

THE war has cost the United States of America ten million dollars an hour. That is the cost of the war in money. This, compared with the cost of the depression of the 1930's in America is about only one-third as great. The cost of the depression in terms of goods and services and products *not* produced was approximately three times higher. As a matter of fact, it is not an oversimplification to charge the rise and the cost of Nazism, Fascism and the war itself to the great depression.

If I were an industrial manager, I would not find these costs accounted for or listed in the books and balance sheets of my company. But they are there just the same. The costs, human and financial, of industrial conflict, are equally important.

If I were an industrial manager, I would be concerned not only about generally recognized costs of production or distribution of the products of my company, but I should be equally concerned about the "social costs" that I have previously mentioned.

No industry and no industrial leader operates in a vacuum or can avoid the payment of the price extracted when Father Time sends his bill for the payment of "social costs."

Therefore, it seems to me that two of the questions of our time in domestic America are: "What more can we do to stabilize our great industrial economy on the basis of full employment and ever increasing productivity? What more can we do to make democracy work?"

If I were an industrial manager, here are some of the steps that I would urge my associates to take:

I would seek to do my part in the democratic plan for a postwar America by implementing the code of principles for peace and prosperity recently enumerated on the national scene by Eric Johnston of the United States Chamber of Commerce, President Philip Murray of the CIO, and President William Green of the AF of L. They are:

(1) The maintenance of truly free enterprise as the foundation for an expanding economy—with the highest degree of production and employment at wages assuring a steadily advancing standard of living.

(2) The recognition of the inherent right and responsibility of management to direct industrial operations.

(3) The recognition of the fundamental right of labor to organize and to engage in collective bargaining, thereby discouraging avoidable strife and strikes and lock-outs.

(4) Union-management cooperation in building an economic system for the nation which will protect the individual against the hazards of unemployment, old age, and physical impairment beyond his control.

We may very well start the ball rolling on the following suggestions:

(a) The establishment in each industrial community of a joint union-management production and employment council to be composed of the most able leadership of industry and labor men who can promote unity on an agreed code of principles, and staffed and financed equally by management and labor so as to provide at least a few full-time competent individuals who may devote their work day to the effort required in securing joint action by industry and unions to achieve and realize those desirable objectives already well recognized in the existing area of agreement.

Further, they could develop a program to *increase* the area of agreement. In a small way it has already been done in many instances. In the recent Los Angeles municipal election, the leaders of industry, AFL and CIO joined hands in urging the

community to support an airport bond issue on the ballot.

The number of such projects for which joint support of unions and industry could be secured is unlimited in the fields of needed legislation, postwar planning for jobs, for full production, for the more effective development of the democratic process, for the manifold problems of reconversion.

At the level of local industry, projects will be found that can be achieved only through such joint effort and support. Likewise, at the inter-industry level and at the functional levels of city, state, and federal government, joint programs and joint participation are absolutely necessary for the future progress of our American economy.

On the national level should be these immediate goals: 1) A modern transportation system inter-relating airways, railways, and modern highways. 2) A quadrupling of our health and educational facilities and personnel to make us a healthier people and lessen the social cost of illness and accidents to Americans.

At the regional level, the goal of regional development of TVA's, MVA's, CVA's and the like, are essential to the future development of industry and a rising standard of living.

At the city level, housing goals and many goals of city reconstruction, can stimulate both public and private enterprise to the advantage of all. The effective, and the practical, leadership in their field can and must come from industry and American trade unions.

America will find, when the guns stop, the following assets: (1) skilled manpower by the millions, including military manpower and youth coming of working age; (2) the largest industrial plant capacity in the world; (3) the largest scientific farm plant in the world; (4) the biggest backlog of requirements for housing, transportation, and the comforts of human life; (5) the recognized necessity of doubling our prewar standard of living if we are to have full use of our plant capacity and our human resources; (6) the greatest reserve of accumulated savings in the history of the nation. With such wealth can anyone honestly and accurately say this nation is threatened with bankruptcy by the war?

What we lack is the machinery, at each functional level of industry and of the community, that makes it possible for industry and unions to jointly participate in solving the basic problems that no single company, no single union, no single city or state government—nor even the *federal* government—can separately solve successfully.

Here are a few of the policies that I would advocate if I were an industrial manager at the plant level of operations:

Policies Advocated

(1) Accept labor unions as permanent institutions, through your personal attitude towards them and in labor contracts through some form of a union security clause.

(2) Help sell the idea that constructive industrial relations in modern industry can be built only on the solid foundation of strong democratic unions and well organized management.

(3) In return for granting the union security of its life I would expect the following from the union:

(a) Competent union leadership. If untrained leadership is elected by the union members, I would want a contractual guarantee that such a union officer would take an agreed upon training course in industrial relations, rate establishment and wage administration, and in the economics of my industry. Union-management cooperation comes through understanding each other's problems.

(b) Where and when necessary, contractual regulation of the union.

(c) Establishment of a joint house organ—jointly edited and financed by the company and the union and devoted to fostering sound employee relations.

(d) Active support of the union on specific projects that will help my industry.

(e) An active union campaign to help reduce production costs by making union members cost-conscious, thereby improving the competitive position of the enterprise and increasing earnings of both workers and owners.

(f) Support and help in fostering the community life of our factory in such a way as to provide the workers with the personality needs of freedom of action, self-expression, and creative outlet needed by every normal human being.

(4) Place a leader of the union on the board of directors of the company in order that he may become more familiar with the overall problems faced by the management.

(5) Expect a normal number of grievances through the grievance machinery. If a normal number of grievances are not processed by the grievance procedure, file a grievance against the union for failure to function properly.

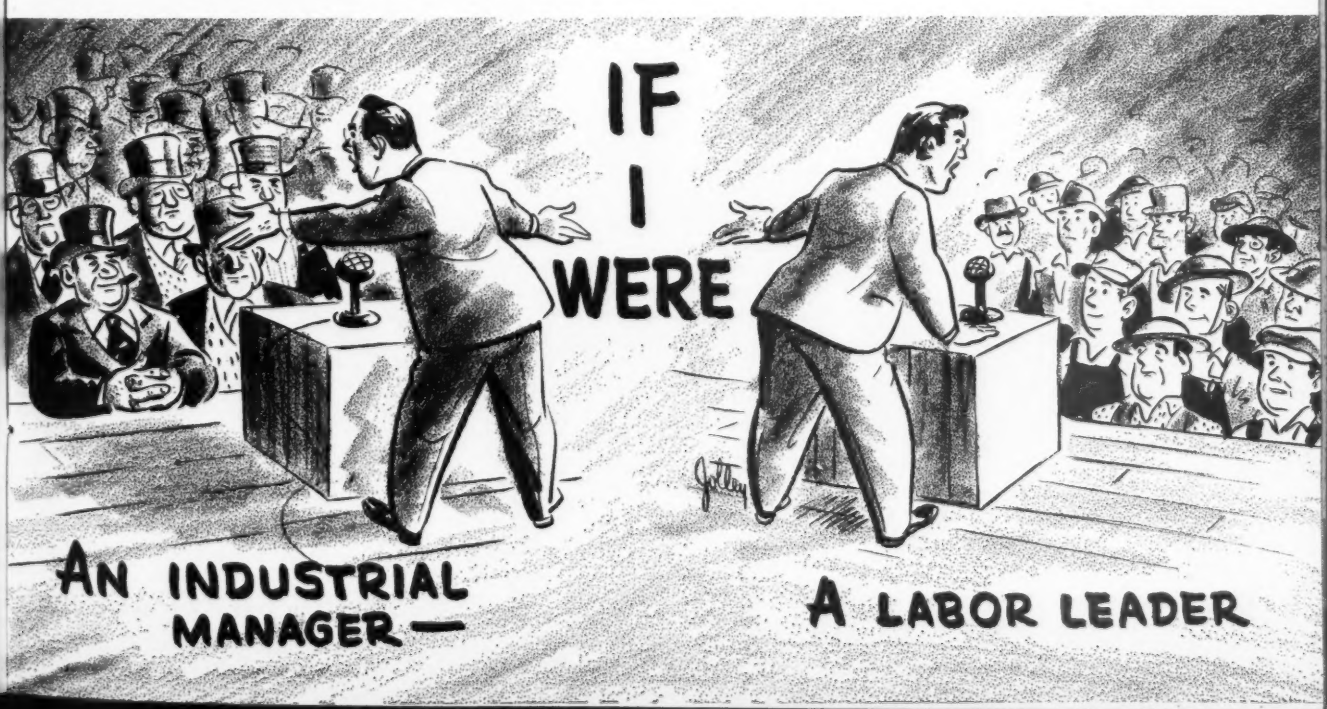
(6) Encourage all necessary steps towards industry-wide collective bargaining in the industry.

(7) Help sell any and all measures that go in the direction of full employment and increased production by private enterprise and public enterprise in the complete use of all productive facilities of the nation. Be committed to the objective of a productive job for all willing to work.

(8) Agree with labor on the desirability of working out practical annual wage plans for as large a number of industrial workers as possible.

(9) Support special training and seniority guarantees for veterans.

(10) Practice the Golden Rule.



• **Left: Only one operation was required to bend this rectangular magnesium tubing as against three required for bending brass. Right: Simple, inexpensive equipment in the hands of a well trained welder will produce as satisfactory magnesium weld as this.**

Magnesium Can Do As Well In Peace As It Has Done In War

By ROGER SHERMAN
Dalmo Victor Corporation, San Carlos, Calif.
(From paper presented at Light Metals Conference, Seattle, June 22)

THE effect of the inherent qualities of magnesium—a metal which won't burn until heated to more than 1200 degrees regardless of what some people think—on the economic aspects of its fabrication are of prime importance to those who will work the metal. And these economic aspects are of certainly equal significance to any plant executives who may be contemplating the use of magnesium in postwar production.

Most important of these inherent qualities are as follows:

Corrosion

A great many people have the idea that if a piece of magnesium is brought within a mile of the ocean it will disappear into thin air. Considerable research has been done on corrosion, the best article I have yet seen on the subject being a Dow pamphlet which cites examples of exposure of magnesium to salt air for as long as 8 or 10 years without harmful corrosion.

Reason for listing corrosion under the general heading of economics is that the corrosion problem can be licked by proper design. All of us know that under severely corrosive atmospheres dissimilar metals should not be in contact. Yet if these metals are kept separated by a plastic tube or washer the cost of making the part will be increased only slightly. Naturally it could happen that an engineer would want to make a part one way for economic reasons while it should be made differently from a corrosion standpoint. For ordinary items, however, such as household articles, garden or farm equipment, etc., dissimilar metals in contact should not be troublesome.

Forming and Bending

Cold bending and forming of magnesium sheet and extrusions can only be done to a limited extent. Large radius bends in tubing and shapes, and shallow draws in sheet and plate may be made cold. Blanking on a punch press can be done cold with fairly thin material, though improved edge conditions are obtained with thick material if it is blanked hot.

There is one advantage to bending and forming metals while hot—that quite often operations involving two or three steps due to work hardening can be done in one operation. We had a problem of bending a 9/16 radius in a brass rectangular tube 1 x ½ in. The tube was filled with a low melting lead alloy and bent in three different operations. But the same piece, made of magnesium by filling the tube with sand and heating the forming jig and tube, was bent in only one operation.

Annealing

Welded structures of magnesium should always be stress annealed before machining or finishing. There are two reasons for this: one, to prevent warping during machining. The other, to avoid "stress corrosion." Experiments have shown that when magnesium has stresses locked in from welding, its rate of corrosion under severe conditions is accelerated, hence most manufacturers of magnesium welded structures should have available an annealing oven. This oven will also be used for heating fixtures or parts to be formed and heat treating.

Costs

Final cost should be the basis. The cost of magnesium and aluminum metal in castings or wrought products is higher even on volume basis than ordinary structural metals. This is base cost. The cost of fabricating magnesium structures with proper methods should be less costly than other heavier metals. Magnesium is the fastest and best machining metal known. Actually there are several applications where magnesium is used for no other reason than that the reduced cost of machining warrants the use of a more expensive material.

Northrop Aircraft Company, pioneers of helium-arc welding, published a cost analysis of a magnesium welded structure versus a riveted structure of a less costly material. The analysis showed that substantial savings were realized in the magnesium structure. Further economy is realized on powered vehicles in reduced fuel consumption so that the final cost is less in light metals than in the same structure built of heavier materials.

Automobile manufacturers have told me they would be interested in magnesium

castings for use only when the cost is reduced to 25c per pound for finished castings. If we take cast iron, for instance, its properties are slightly less than magnesium castings except for deflection. But due to the nature of a casting it must be fairly massive to be cast at all. Consequently deflection seldom enters into casting design.

Magnesium, therefore, can be substituted for cast iron with few if any changes. Since the metal is approximately 4½ times lighter than iron, for a given volume of it we can pay $1.12 per pound in finished castings and still compete with cast iron, without even considering the advantages in reduced machining costs and a lighter weight product.

Tools

For some time Dalmo Victor has been considering making production tools such as jigs and fixtures out of magnesium. These could be cast either from an inexpensive "one off" pattern and machined, or welded from rolled plate.

The advantages are several:

1. In drilling magnesium castings where close tolerances must be held, changes in temperature can make considerable difference because the rates of expansion of steel and magnesium are in the ratio of about 2½ to 1. If a magnesium drill jig is used, the expansion would be equal to both the work and the tool. Of course, any wearing surfaces on the tool must be covered with steel to prevent wear such as drill bushings in holes.

2. Most of the magnesium casting we use at the present time are quite small hence the drill jigs and other tools are small also. Even so, some tools weigh as much as 40 or 50 pounds. Where these tools have to be handled any great amount the saving in weight should be quite a factor in reducing costs owing to easier handling. Where larger parts are produced, and consequently larger tools are used, their construction of magnesium could easily mean the difference between having to use a crane to move the tool and being able to move it by hand.

Fabrication Procedure, Equipment

In fabricating magnesium a few methods now in use will give an idea of the possibilities for using available equipment in small shops, which will be the greatest users of light metals after the war.

1. Band Saws

A band saw is most useful for sawing shapes or strips in magnesium sheet and plate that is too heavy to shear. An ordinary wood cutting band saw with wood cutting blades is preferable since it gives the necessary high speeds to obtain fast, clean cuts. (Magnesium is cut at blade speeds up to 10,000 feet per min.)

2. Punch Presses

Punch presses are not recommended for drawing magnesium. The metal is supposed to be worked slowly even while hot. A hydraulic press is ideal for drawing but is quite expensive. At Dalmo Victor, however, we have had very good luck making small cups on a punch press with the draw equal to about ½ the diameter. Blanking and punching can easily be done on a punch press just like any other metal with slight differences in die clearances, etc.

3. Lathes and Milling Machines

Any lathe ordinarily used for other metals is suitable for magnesium. Lathes that will turn at high speeds are preferable for magnesium should be turned at a surface speed of around 5000 feet/min. to get maximum efficiency and surface finish. Milling machines should also be of the high speed variety.

4. Welding

Any good D.C. arc welding machine is suitable for welding magnesium with the additional equipment for welding by the helium-arc method. This includes a helium-arc torch, tank of helium, flow meter, tungsten electrodes, and suitable accessories common to any type of welding. In fact the equipment is so simple and inexpensive that almost any welding fabrication shop could start fabricating magnesium structures after they had trained a welder to handle the process.

There is only one catch to this, and that is that the holders of the patents for the helium-arc process are requiring a rather stiff license fee to be paid for its use. The license fee is now $400 for one or two torches and $100 each for additional torches.

Gas Welding Similarity

Magnesium is likewise gas welded successfully; in fact it was gas welded long before it was arc-welded. Dow Chemical Company is said to use gas welding almost exclusively, probably for the reason that it is slightly cheaper, and because, for the large volume of welding that it undoubtedly has, the difference in cost between helium and oxygen and acetylene or hydrogen would be considerable.

Magnesium cannot be gas welded without a special flux which is highly corrosive to the metal. Consequently if any flux is left on or in the weld, it will not stand up very long. On the other hand, for welds easy to reach and welded by a competent gas welder who knows magnesium, gas welding is a good solution to the joining problem.

• The strength of magnesium tubing framework, as shown in the lightweight totebox below, makes it highly suitable for many different kinds of material handling requirements.

West Uses Axis Patents

SEIZED enemy patents are being used by at least 73 Western firms and individuals, latest information given out by the Office of the Alien Property Custodian in Washington, D. C., indicates, according to Howland H. Sargeant, chief, Division of Patent Administration.

Actually, however, there is no reason why many more Westerners should not be making use of enemy techniques and inventions, for all that one has to do to take advantage of them is to get a copy of the "Index and Guide to 45,000 Patents vested in the Alien Property Custodian as of June, 1944."

Abstracts of these patents, which make it a comparatively simple matter to determine the usefulness of the ideas, have recently been received by the technical advisory service departments of the Smaller War Plants Corporation offices in San Francisco, Los Angeles, Seattle and Denver, and by some banking institutions.

So far throughout the entire United States no less than 803 firms and individuals have received licenses, as of July 15, for 9,945 patents, approximately 2,500 having been asked for more than once.

Patents licensed in the eleven Western states so far cover a wide range of subjects. As shown in the list of subjects given here they range from canning crab —seized from the Japanese—to making a granular building material from sawdust —an unintended gift from the Nazis.

The list of the more interesting subjects is as follows: synthetic rubber components; aviation gasoline; petroleum and petroleum chemicals; grinding machine; photo-electric cell; manufacture of citric acid; pneumatic conveyor; aircraft accessories; electric water heater; canning of crab meat; granular building material from sawdust; lining of milk receptacles; internal combustion engine; mixer for Portland cement clinker; crushing mill; rotary combustion machine; plastic raw material and synthetic resins; a cigarette lighter.

States in which the 73 Western firms and individuals are who have obtained the licenses are:

	Number of Different Licenses	*Number of Patents*
California	50	156
Oregon	7	36
Washington	8	10
Idaho	1	6
Montana	1	3
Colorado	5	10
Arizona	1	2
Nevada	0	0
Wyoming	0	0
New Mexico	0	0
Utah	0	0
Totals	73	223

Representation Needed

One of the needs of the transportation industry on the West Coast resulting from its growth as a manufacturing area is to have a representative from either the Freight Container Bureau or Freight Claim Division of the Association of American Railroads to work on container problems, reported T. F. McCue, traffic manager of Crane Company at Los Angeles, at the June meeting of the Pacific Coast Transportation Advisory Board. Every other district in the United States has a representative on the Freight Container Bureau.

A CHART INDICATING RELATIVE DESIGN CHARACTERISTICS OF A FEW LIGHT METAL ALLOYS AND FERROUS METALS

MILD STEEL USED AS BASE FOR COMPARISON

Type of Structure	Design Requirements To Be Met By Structure: Dimensional Requirements	Design Requirements To Be Met By Structure: Physical Requirements	Type of Load	Structural Characteristic of Primary Importance	Physical Relationship	Mild Steel	Low-Alloy Steel	High-Alloy Steel	Cast Aluminum Alloy	Wrought Aluminum Alloy	Cast Magnesium Alloy	Wrought Magnesium Alloy	Cast Iron
Flat Plate	Length Width	Static Strength	Static Tension or Compression Short Column	Minimum Weight	$\frac{\rho}{S_t}$	1.00	.40	.20	.35	.21	.39	.20	1.37
Flat Plate	Length Width	Fatigue Strength	Reversed Tension or Compression	Minimum Weight	$\frac{\rho}{F_r}$	1.00	.40	.20	.78	.36	.39	.26	1.84
Flat Plate	Length Width	Static Deflection	Static Tension or Compression	Minimum Weight	$\frac{\rho}{E}$	1.00	1.00	1.00	1.02	1.03	1.08	1.06	2.28
Flat Plate	Length Width	Static Strength	Static Simple Shear	Minimum Weight	$\frac{\rho}{S_s}$	1.00	.40	.20	.35	.21	.39	.20	.83
Flat Plate	Length Width	Fatigue Strength	Reversed Simple Shear	Minimum Weight	$\frac{\rho}{F_s}$	1.00	.40	.20	.78	.36	.39	.26	1.10
Flat Plate	Length Width	Static Deflection	Static Simple Shear	Minimum Weight	$\frac{\rho}{G}$	1.00	1.00	1.00	1.13	1.11	1.16	1.14	2.10
Flat Plate	Length Width	Static Strength	Static Bending	Minimum Weight	$\frac{\rho}{S_f}$	1.00	.63	.45	.35	.28	.30	.21	1.12
Flat Plate	Length Width	Fatigue Strength	Reversed Bending	Minimum Weight	$\frac{\rho}{F_f}$	1.00	.63	.45	.53	.36	.30	.24	1.30
Flat Plate	Length Width	Static Deflection	Static Bending	Minimum Weight	$\frac{\rho}{D}$	1.00	1.00	1.00	.80	.51	.39	.38	1.24
Flat Plate	Length	Natural Frequency of Vibration	Reversed Bending	Minimum Weight	$\frac{\rho^2}{D}$	1.00	1.00	1.00	.36	.38	.24	.24	1.39
Flat Plate	Length Width	Static Strength	Static Compression (Long Column)	Minimum Weight	$\frac{\rho}{D}$	1.00	1.00	1.00	.50	.51	.39	.38	1.24
Solid Cylinder	Length	Static Strength	Static Torsion	Minimum Weight	$\frac{\rho}{S_s}$	1.00	.84	.33	.35	.25	.33	.21	.82
Solid Cylinder	None	Static Strength	Static Torsion	Minimum Outside Diameter	$\frac{1}{S_s}$	1.00	.74	.58	1.00	.84	1.18	.95	.98
Solid Cylinder	Length	Fatigue Strength	Reversed Torsion	Minimum Weight	$\frac{\rho}{F_s}$	1.00	.53	.34	.60	.36	.33	.25	1.03
Solid Cylinder	None	Fatigue Strength	Reversed Torsion	Minimum Outside Diameter	$\frac{1}{F_s}$	1.00	.74	.59	1.31	1.00	1.18	1.04	1.07
Solid Cylinder	Length	Static Deflection	Static Torsion	Minimum Weight	$\frac{\rho}{G}$	1.00	1.00	1.00	.62	.63	.52	.51	1.43
Solid Cylinder	Length	Static Deflection	Static Torsion	Minimum Outside Diameter	$\frac{1}{G}$	1.00	1.00	1.00	1.33	1.33	1.49	1.49	1.32
Solid Cylinder	Length	None	Reversed Torsion	Natural Frequency of Vibration	$\frac{G}{\rho}$	1.00	1.00	1.00	.96	.95	.93	.94	.88
Solid Cylinder	Length	Static Strength	Static Bending	Minimum Weight	$\frac{\rho}{S_f}$	1.00	.54	.34	.35	.25	.33	.21	1.20
Solid Cylinder	Length	Static Strength	Static Bending	Minimum Outside Diameter	$\frac{1}{S_f}$	1.00	.74	.57	1.00	.84	1.18	.95	1.16
Solid Cylinder	Length	Fatigue Strength	Reversed Bending	Minimum Weight	$\frac{\rho}{F_f}$	1.00	.55	.34	.60	.36	.33	.25	1.46
Solid Cylinder	Length	Fatigue Strength	Reversed Bending	Minimum Outside Diameter	$\frac{1}{F_f}$	1.00	.74	.58	1.31	1.00	1.19	1.04	1.27
Solid Cylinder	Length	Static Deflection	Static Bending	Minimum Weight	$\frac{\rho}{Ef}$	1.00	1.00	1.00	.60	.60	.50	.49	1.44
Solid Cylinder	Length	Static Deflection	Static Bending	Minimum Outside Diameter	$\frac{1}{Ef}$	1.00	1.00	1.00	1.30	1.30	1.47	1.47	1.18
Solid Cylinder	Length	Natural Frequency of Vibration	Reversed Bending	Minimum Weight	$\frac{\rho^2}{E}$	1.00	1.00	1.00	.36	.37	.25	.24	2.15
Solid Cylinder	Length	Natural Frequency of Vibration	Reversed Bending	Minimum Outside Diameter	$\frac{\rho^2}{E}$	1.00	1.00	1.00	1.01	1.02	1.04	1.03	1.51
Solid Cylinder	Length	Static Strength	Static Compression (Long Column)	Minimum Weight	$\frac{\rho}{D}$	1.00	1.00	1.00	.60	.60	.50	.49	1.44
Solid Cylinder	Length	Weight	Static Bending Under Weight of Structure	Minimum Deflection	$\frac{\rho^2}{E}$	1.00	1.00	1.00	.36	.37	.25	.24	2.15
Hollow Cylinder	Length Mean Diameter	Static Strength	Static Torsion	Minimum Weight	$\frac{\rho}{S_s}$	1.00	.40	.20	.35	.21	.39	.20	.83
Hollow Cylinder	Length Mean Diameter	Fatigue Strength	Reversed Torsion	Minimum Weight	$\frac{\rho}{F_s}$	1.00	.40	.20	.78	.36	.39	.26	1.10
Hollow Cylinder	Length Mean Diameter	Static Deflection	Static Torsion	Minimum Weight	$\frac{\rho}{G}$	1.00	1.00	1.00	1.13	1.12	1.16	1.14	2.10
Hollow Cylinder	Length Mean Diameter	Static Strength	Static Bending	Minimum Weight	$\frac{\rho}{S_f}$	1.00	.40	.20	.35	.21	.39	.20	1.38
Hollow Cylinder	Length Mean Diameter	Fatigue Strength	Reversed Bending	Minimum Weight	$\frac{\rho}{F_f}$	1.00	.40	.20	.78	.36	.39	.26	1.84
Hollow Cylinder	Length Mean Diameter	Static Deflection	Static Bending	Minimum Weight	$\frac{\rho}{E}$	1.00	1.00	1.00	1.02	1.03	1.08	1.06	2.28
Hollow Cylinder	Length Mean Diameter	None	Reversed Bending	Natural Frequency of Vibration	$\frac{E^2}{\rho^2}$	1.00	1.00	1.00	.98	.98	.96	.97	.88
Hollow Cylinder	Length Mean Diameter	Static Strength	Static Compression (Long Column)	Minimum Weight	$\frac{\rho}{E}$	1.00	1.00	1.00	1.02	1.03	1.08	1.06	2.28
Hollow Cylinder	Length Mean Diameter	None	Tension, Compression or Bending Under Weight of Structure	Minimum Deflection	$\frac{\rho}{E}$	1.00	1.00	1.00	1.02	1.03	1.08	1.06	2.28
Rotating Disc	Outside Diameter	Static Strength	Tension Due to Centrifugal Force Action on Structure	Maximum Rotational Speed	$\frac{S_t}{\rho}$	1.00	1.58	2.24	1.65	2.16	1.60	2.25	.85

Note: When the characteristic under consideration is to be a minimum, a minimum factor should be selected, and when a maximum, it should be a maximum.

References:
Metals Handbook — 1939 Edition
ALCOA Aluminum and its Alloys — 1942
Dowmetal Magnesium Alloys — 1942

The static shear strength and fatigue shear strength were taken as 0.8 of the static yield point and fatigue tensile strength respectively.

MECHANICAL ENGINEERING DEPARTMENT
STATE COLLEGE of WASHINGTON
JUNE 11, 1943

Physical Property	Specific Gravity	DESIGN MODULI and LIMITING STRESSES: Static Yield Point psi. S_t	Static Shear Strength psi. S_s	Fatigue Tensile Strength psi. F_t	Fatigue Shear Strength F_s	Young's Modulus E	Shear Modulus E_s	Cost (Approx. in Dollars per Lb.)
Symbol								
Mild Steel	7.85	30,000	18,000	80,000	12,000	30,000,000	12,000,000	.0200
Low alloy Steel	7.85	75,000	45,000	90,000	30,000	30,000,000	12,000,000	.0600
High alloy Steel	7.85	150,000	90,000	100,000	60,000	30,000,000	12,000,000	.4001
Cast Aluminum Alloy	2.77	30,000	18,000	9,000	5,400	10,300,000	3,850,000	.500
Wrought Aluminum Alloy	2.79	50,000	30,000	20,000	12,000	10,300,000	3,850,000	.7000
Cast Magnesium Alloy	1.83	18,000	10,800	12,000	7,200	6,500,000	2,400,000	.1800
Wrought Magnesium Alloy	1.80	35,000	21,000	18,000	10,800	6,500,000	2,400,000	.4500
Cast Iron	7.20	20,000	20,000	10,000	10,000	12,000,000	5,000,000	.10

Western Executives of Middle Group Should be Better Paid

HIGHER salary scales in the middle executive group are needed in the war-expanded industries of the West if these firms expect to attract the type of men who will be able to make the business operate profitably in the postwar period, according to Marvin Bower, New York partner of McKinsey Co., consulting management engineers. His remarks applied to concerns doing $1 million to $8 million business before the war, now doing from $3 million to $9 million, and trying to hold their gains.

Speaking before a joint session in San Francisco of the Society for the Advancement of Management and the American Marketing Association, he also said that successful eastern executives who were willing to accept reduced compensation in order to be able to live out here were generally not such manpower bargains after all, because their jobs were no longer their primary consideration.

Mr. Bower, who is spending several months on the Pacific Coast, summed up in four steps his observations of what management needs to do in converting from war work to competitive civilian production as follows:

1. The smaller business that has grown large must shift from a personal basis of management to programmed management. A plan of action must be established and the business must operate under well-defined methods, instead of meeting situations on a day-to-day basis as the head of the company personally finds it desirable or necessary.

2. Jobs must be defined more adequately, because the chief executive will not be able to keep in close touch with details. The relationship of each job to others must be defined, also the manner of doing each job.

3. Salary scales must be raised, not on a horizontal basis, because that constitutes inflation, but the value of the position must be determined and compensation set at such a level as will attract the men who can "do the impossible."

4. The firm must program its development of executive material. The owner-executive can't find men in his own institution because they aren't there, so he goes outside in search of talent or makes a compromise on a man of lesser ability. As the business grows larger, executive weakness causes decay to set in because the top man cannot oversee everything. He must buy and develop executive talent, not just letting men learn by themselves, but helping them so they won't get tired and go somewhere else.

"The problem is how to build up a hard-hitting organization that can compete with older concerns from elsewhere in the country and maintain these new plants and facilities," he said. "The West is in the process of shifting from being a distributing area to manufacturing and more direct distribution. Eastern concerns facing a drop in business are eyeing this area as a good territory to enter, and manufacturers here will face a hard task in holding their own against competition."

He said many competent executives seeking good connections on the coast were stopped by the lower salaries paid and many men from the West were going east to get better compensation.

"If the West is to compete in the brains market to fill these jobs, it will have to pay executives in the middle brackets what the job is worth in relation to producing profits. In the top management level this is frequently taken care of out here by equity ownership, the West having been more liberal on an incentive basis than on a salary basis, but the top management men of the future must come from the middle group of today.

"The West also must resist the temptation to take the man from the East who will work for less out here because of the pleasant living conditions. Such people haven't really got their heart in the job; they don't want to put in 18 hours a day if need be. Employers who take them are really bargain hunting in the manpower market.

"Top management has a responsibility to take the man who is on his way up, who can be depended on to put in the last ounce of effort, because the other man will be out of the picture in the long run when it comes to building up a real strong organization."

He cited as an example of utilization of brainpower to produce profits a company that was having difficulty in getting its work out on time. It needed a better engineering job, but had no assistant chief engineer. If the company did not create such a job and pay a salary adequate to attract the right man, its volume would decrease.

One influence in reaching a more equitable salary level between East and West, in Mr. Bower's opinion, will be the entrance of more national concerns into the West, who will have a national scale of salaries varying only according to differences in cost of living.

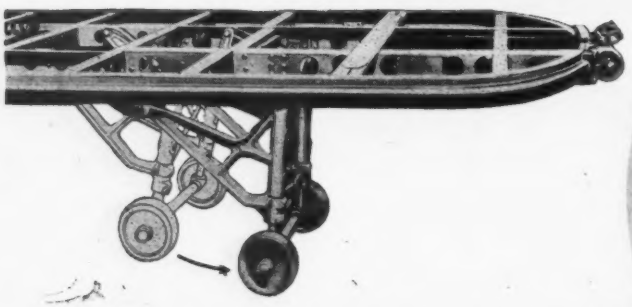
• As a result of detailed studies of the scale model of the San Joaquin Sacramento river delta region, built in the Bureau of Reclamation's hydraulic laboratory at Denver, the Delta Cross Channel, pointed out below, was located along the best water route at the lowest possible cost. Purpose of the channel is to supply fresh water from the Sacramento to the San Joaquin Valley where a shortage has been growing increasingly severe.

How Thrifty Drug Stores

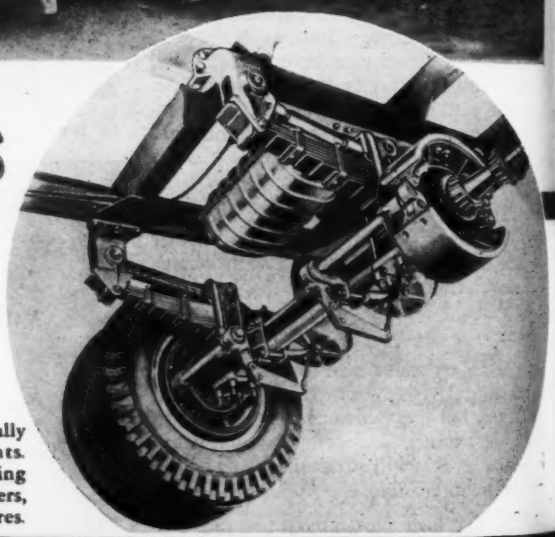
Left: From Thrifty's warehouses, Fruehauf Truck-Trailer units haul a steady stream of merchandise to their 66 stores.

Right: Fruehauf Automatic Semi-Trailer with Converter-gear being used as "train" unit behind a Truck-Tractor.

Below: Fruehauf Automatic Semi-Trailers lined up at Thrifty warehouse for "shuttle" operation hauling.



Above: Fruehauf Automatics are the most efficient of all Semi-Trailers. Save time in spotting, safer in disconnecting, weight scientifically distributed, require less space.



Right: Improved springs automatically adjust themselves to all weights. Underconstruction uses weight-saving I-beam axles, 360 degree slack adjusters, oversize brakes and many other features.

ENGINEERED TRANSPORTATION
REG. U.S. PAT. OFF.

FRUEHAUF

Haul *More* With *Less*

A chain of modern drug stores, selling everything from pills to carpet tacks, requires a constant flow of merchandise from warehouses to counters. Thrifty Drug Stores have met the problem of supplying their 66 outlets from Santa Barbara to San Diego, by supplementing the Thrifty fleet of Truck-Tractors with nine Fruehauf Automatic Semi-Trailers.

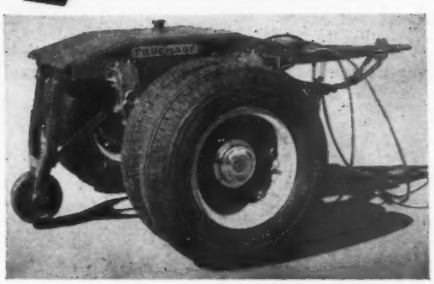
"Shuttle" type operation, by which Trailers are left to be loaded or unloaded while a Truck-Tractor is hauling full units, makes it possible for one driver to do the work of three. For long trips between cities they use Fruehauf Converter-gear Dollies (shown in the illustration) by which their Semi-Trailers can be hauled as "train" units, handling three times the load that a single truck could carry. Thus, with Fruehauf Trailers, they haul *more* with *less* equipment than would be required with trucks alone; less fuel, less tire wear, fewer trips, smaller investment and fewer drivers. That's what we mean by Fruehauf "Engineered Transportation".

Consult your nearest Fruehauf Branch on your transportation problems. They have a background of experience which will be valuable. No obligation.

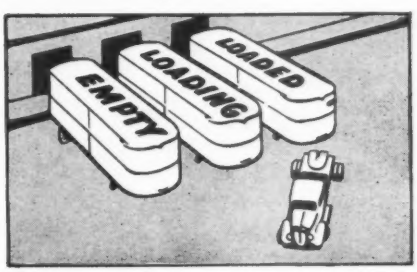
World's Largest Builders of Truck-Trailers

FRUEHAUF TRAILER COMPANY

Western Manufacturing Plant — Los Angeles



The Fruehauf Converter-gear Dolly makes it possible to convert a Semi-Trailer for hauling as a "train" unit.



Trucks keep rolling with "shuttle" operation. Only the Trailers, the load-carrying detachable "bodies", need be left standing for loading or unloading. The truck stays on the road pulling first one, then another Trailer to destination.

F TRAILERS

Sales and Service Branches:

Los Angeles	Fresno	Portland
San Diego	Phoenix	Spokane
San Francisco	Seattle	Denver
Salt Lake City		El Paso

Workmen's Lives Depend On Crane Operator's Efficiency

By ANTHONY MIKULIC

Since 1936, Mr. Mikulic has been plant superintendent for the Schmitt Steel Company, Portland, Oregon. Before becoming foreman and then plant superintendent at the Schmitt Steel Company, Mr. Mikulic was a crane operator. He knows the game from both the operator's angle and the management's point of view.

WE HAVE no seasoned crane operators in our plant. They have all been trained since 1939. When we expand after the war and hire more men to handle crane work, we will train them ourselves. This is true whether they have had experience in other plants or come to us from the Army or Navy with crane operation training, or are green hands.

Take for example our ten ton traveling (overhead) crane which operates in the forge shop. It runs 32 feet above the floor; has a spread of 60 feet; and can travel the full length of the 200 foot floor.

This crane is equipped with four, 32-foot preformed cables, 5/8-inch. The operator can reach any spot in the forge room. He can handle a "pick-up" load of from 100 pounds to 10 tons plus. His operations must have split-second timing and his sets caliper accuracy.

Upon this man's equipment, judgment, and operation depends the life of every workman on the floor. Safety carries the top priority.

First then, the prospective operator must be a man who is physically and mentally qualified to become a crane operator. He should have a background without accidents. He must have the knack of getting along with his fellow workers on the floor. He must know *why* on his diplomacy.

Second, he must know every mechanical detail of his equipment. This before he is allowed to operate it.

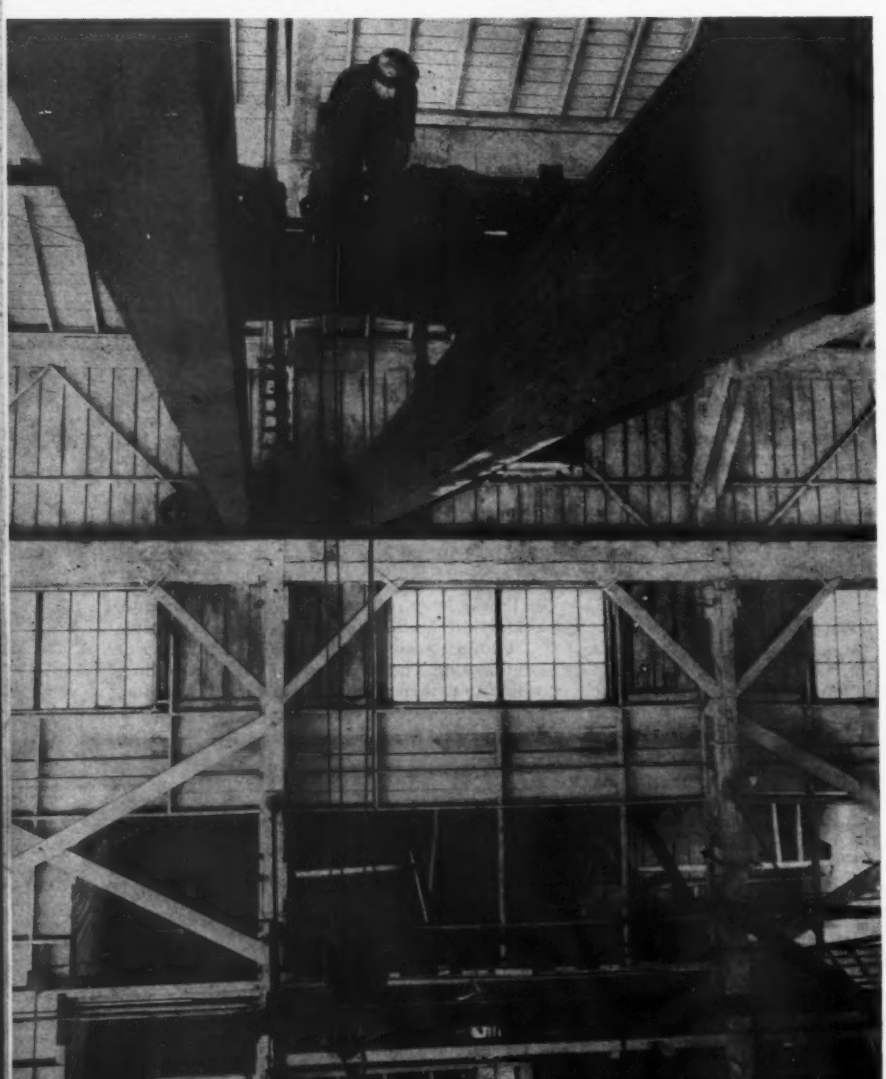
Third, he should spend at least a week on the floor learning the work there. This is very important, because more than any other man in the department the overhead crane operator's assignment covers every nook and corner in the building.

Fourth, he must be taught to operate the crane for every job in his particular section of the factory.

Fifth, he must understand every step in the company's and department's safety program. More, he must subscribe to them wholeheartedly.

There are two "must" rules which should be checked and double-checked with all new operators:

• Maintenance man oiling crane and treating cables with lubricant at the regular twice weekly check-up demanded at the Schmitt Steel Company's plant in Portland, Oregon.



Rule No. 1

All overhead cranes are equipped with a signal bell. The operator must learn to use this bell as if by second nature. It is his signal to the men below. It is their instruction to get out of the way, or move their load or make room for what is coming.

If the signal is not heard by all the men below, it is the operator's duty to repeat the warning. He must be taught to watch the workmen he is serving and know from their actions whether they heard or not. Good judgment and keen perception are absolute requisites.

This is a hard regulation to teach to a new operator and it is equally hard to explain to any man who has not operated an overhead crane above a busy floor.

The whole safety set-up of the department is built around this signal and every workman hearing and understanding it.

The operator must not only use this warning correctly but he must get along with his fellow workmen on the floor so that they obey his signal. This requires that every man on the floor respects the judgment of the crane operator. An operator who does not demand this respect or cannot be taught to command it should go into some other kind of work.

Rule No. 2

The second "must" has to do with understanding the equipment and requires that the operator actually *likes* the tools of his trade. The knowledge regarding the equipment and its care can be taught but the operator's interest in it cannot.

Coming back to the crane which serves the forge shop: before beginning his shift the operator must check his crane thor-

oughly. He must be able to detect the slightest error or service need. He is instructed to run his cables through several times to get the "feel." He has been taught in his pre-training that his high tension preformed cables are required equipment because of the "feel" advantage the preforming has given them. He has also been taught that non-preformed cables do not give him this advantage.

The operator must report to the maintenance department the slightest defect or correction need. More, it is his duty to know that the maintenance crew has made the repairs or corrections.

A complete lubrication check-up is required twice a week. The cable is cleaned, thoroughly inspected, and treated with a new lubricant at this time.

In making requests for repairs the operator must take into consideration the safety precaution as well as maintenance needs.

After the War

All of us expect to have veterans who were with us before the war return and take their old jobs. The job of crane operator is very confining and requires steady nerves. We must check closely to see that these boys still have the required qualifications before we assign them to crane duty. Employ them—certainly! But be cautious on assignments.

I feel that any man who was a crane operator before the war and has added the experience of war, if his nervous and physical condition does not constitute a bar, should be a better crane operator. He should be better trained in cooperation. He is bound to better understand the value and price of safety.

After the war we expect to have better trained over-head crane operators.

• Anthony Milukic, Schmitt Steel Company Plant Superintendent who has had many years of experience as a crane operator.

MACHINERY AND EQUIPMENT IN THE FORGE SHOP SERVED BY THE OVERHEAD CRANE

1—5" Upset Forging Machine
2—4" Upset Forging Machines
1—3½" Upset Forging Machine
2—3" Upset Forging Machines
2—2" Upset Forging Machines
3—1½" Upset Forging Machines
1—1½" H-Semi-Automatic Bolt Header
1—1" H-Semi-Automatic Bolt Header
1—1" Semi-Automatic Rivet Header
4—Bulldozers
1—500-Pound Beaudry Hammer
1—400-Pound Nazel Hammer
2—100-Pound Bradley Hammers
2—800-Pound Board Drop Hammers
1—1600-Pound Board Drop Hammer
2—Trimming Presses
1—300-Ton Hydraulic Press
1—Hot Saw & Burring Machine
(Besides a full equipment of miscellaneous saws, shears, punches, grinders, and tumbling and cleaning machinery)

Toggle Type Bridles Given Russian Ships

Toggle type strongback bridles are replacing hook type bridles on lend-lease vessels made available to the Russians, and are expected to become standard on all lend-lease ships.

Installation of the safety devices are in a large part the result of the activities of the Columbia River Accident Prevention Committee, plus those of W. H. Clark, operating manager for Moore-McCormack at Portland.

Boeing Simplifies Plane Testing

A new plane-to-ground radio device for use in flight testing of aircraft automatically transmits to a ground station in a truck the readings of as many as 39 instruments simultaneously.

Developed by Boeing research engineers under the direction of Dr. C. K. Stedman, it virtually does away with the necessity of having more than the flight crew present in the plane during its test.

Glue For Unit Loads Displaces Pallets

"Glued unit loading," an outgrowth of palletizing practices that does away with the need for pallets in many cases, forms the latest development in the materials handling field.

Evidence of its success lies in the recent issuance of a tentative specification by the Army Quartermaster Corps regarding the use of glue in forming unit loads of canned goods and other items such as crockery, glassware and brewing and paper specialties.

WPB Violators Fined

Fines of $5,000 each and suspended jail sentences of six months have been assessed against Ralph D. Campbell and Victor Levy, WPB violators. Campbell was found guilty of manufacturing stainless steel and copper bar equipment after using spurious ratings to obtain priorities, and Levy of purchasing some of the equipment for resale.

Northwest Survey Favors Light Metals

OUT of 477 individual industry classifications, approximately 160 were found by the Post Victory Products Survey carried on in the Pacific Northwest to offer good opportunities for application or substitution of light metals. Organizations cooperating in the survey included the Association of Washington Industries, Seattle Advertising and Sale Club, Seattle Chamber of Commerce, Washington Purchasing Agents Association, C.E.D., and the industrial engineering groups.

These uses represented products with new or basic advantages where Western manufacturing can, in the opinion of those making the survey, enter the markets on an even basis with manufacturing in any part of the country and with certain basic advantages.

Some of the headline items on the list, as reported at the Light Metals Conference in Seattle in June by C. T. Bakeman, chairman of the survey committee, are as follows:

TRANSPORTATION

Railroad cars, buses, street cars, trailers. Probable annual savings vary from 25 cents to $1.00 per pound of weight saved.
Shipbuilding—Pleasure craft—From complete hulls to fixtures.

AGRICULTURE

Farm implements and fixtures
For example, there is an immediate market for some 800 orchard lug boxes. Lighteners clear obstacles.
The Washington State College has analyzed many pieces of farm equipment for advantageous substitution.

Food Packaging
Foil-lined corrugated paper boxes. This ties in with the development of paper manufacturing in this area.

Frozen Food Packaging
Foil insulation and protection of quality. Immense frozen food industry opportunities bring substantial packaging opportunities here.

TEXTILE

The textile field here is over-due for a substantial development. Aluminum yarns (1/32 of an inch thick) have been developed that can be used in any fabric for shoes, purses and other materials.
This is washable, non-tarnishable, non-shrinkable, fireproof, light weight, insulating, novelty styling, low cost and has long wear.

FABRICATED HOMES, OFFICE FIXTURES AND COMMERCIAL CABINETS

Aluminum overlay and sandwich on Plywood. One of our most rapidly growing industries.

FURNITURE

Can even make mattresses with aluminum springs. They are more springy and lighter in weight.
Recreational, portable and outdoor furniture. Folding chairs, portable hospital and clinical equipment are all excellent opportunities for local manufacturing of a superior product from light metals.

Peace Stirs Turmoil In Alphabet Soup . . .

By ARNOLD KRUCKMAN

WASHINGTON, D.C.—With the end of the world conflict, most government people unofficially expect all rationing to be abandoned by the end of the year, including even commodities still scarce.

But whether that takes place or not it is a certainty that Congress will move quickly to rush measures designed to cushion the shock of change from a war to a peace economy. High on the list of proposed changes will be Truman's unemployment compensation bill of $25 weekly. Other measures will include appropriations of billions in the forms of highway, flood control, river and harbors, federal works and other public works bills. Expected also are expansions of the G.I. Bill as well as a higher minimum wage bill.

WPB is to stay on the job setting up more priorities on delivery sequences, limitations on inventories, etc. More preference ratings will be added to MM and CMP. Controls expected to last for at least a year in the changeover.

Permanent Controls

In fact, much more varied government control seems inevitable during the reconversion, and in all probability government will get permanent controls that will not sit well with industry.

OPA has eleven months to go. WLB expected to fold up. NLRB here permanently. Most war agencies expected to fade quickly unless Congress prolongs their existence for a while as a reconversion measure.

Unions will battle all out for a closed shop continuance, collective bargaining, participation in management and against veterans seniority and compulsory arbitration. Jurisdictional fights and many strikes expected.

Cutbacks seen coming in this order: 30 per cent immediately; 65 to 75 per cent in the first month; 80 to 85 per cent by December. By Christmas 5,000,000 will be unemployed.

Colonel Heller

The interest of Westerners in Col. Edward Heller will sharpen their interest in what may happen to the Surplus Property Board. Chairman Symington has made crystal clear that he will require the traditional Missouri showing before he agrees to anything fostered by Heller or Hurley.

Senator Gillette, straight as a pine, true as steel, honest, is a very good farmer, and a fine country lawyer, but, by his own estimate, he is not a business man. He quit the board because he felt he was not equal to the job. He has now taken over a job for $10,000 a year to help the Jews, and at the same time turned down a Chicago job for $50,000 a year.

Symington is a business man, and has the iron needed to run this board. Under the circumstances there is small doubt here that Col. Heller may soon be back home, or in the Army. Meanwhile, the other colonel, Howse, who expected to run the Surplus Property Board, has disappeared from the board's publicity, and is expected to go home in September or October.

For Veterans

Incidentally, if you are a veteran, you probably know you are entitled to preference in obtaining what you may want in surplus property. The trouble is that most veterans do not know how to take advantage of the preference. A number of veterans have written this reporter to ask what they should do. After an investigation the recommendation is made that veterans needing help should write to Maj. William P. Tidwell, former Executive Secretary of the Surplus Property Board. Tidwell will freely and fully do anything he is able to do to aid the veteran to get any surplus material or property the veteran may need. He is in the happy position of knowing his way around the tortuous channels of the red tape maze of the Surplus Property Board. If the thing can be had, he can find it. Write him: Maj. William P. Tidwell, 711 Woodward Building, Washington 5, D. C.

Western States Council

We now have here a Washington chapter of the Western States Council, created at the request of Christy Thomas, of the Seattle Chamber of Commerce, who heads the council. Membership is restricted to persons in the Capital who are representatives of West Coast Chambers of Commerce. By request, Jack Underwood, representative here of the Seattle Chamber of Commerce, is chairman of the Washington chapter, and John M. Costello, representative of the Los Angeles Chamber of Commerce, is vice-chairman. There are four other members.

Apparently the segment of population in the Capital which hails from the West is in the process of shrinkage. WPB people from the coast are quitting so fast that it is difficult to keep track of them. The same holds good for those who have had jobs in other agencies. There is patently a rush to get back home.

British Election

It is becoming more clear daily that the Labor Government of Britain is essentially an instrument of social reform. There appears to be little similarity between our labor unions and the British trades unions. The British workers have aimed at social changes and the various protective measures for the health and welfare of the workers. Over here the leaders of labor are regarded by the British trades unionists as big business men, more in sympathy with capital than with reformers. Harold Laski, the prophet of the British movement, and its voice, as well as boss, makes this further striking observation: "An honorable status has been secured by the Revolution to the Russian worker in virtue of his work. No one would deny an honorable status to the British worker—*if he touches the cap.*" Laski holds that the world of the future should be organized functionally on the general lines of our TVA. About churches he says: "The churches, through the centuries, have made themselves the agents of a social order whose inner and imminent principle has been to confine the main goods of this world to the few at the expense of the many. I do not think we must restore the authority of the churches in our civilization." It is interesting to learn that Laski thinks: "If Britain embarks upon profound social experiments, their repercussion in the United States is likely to exclude a reactionary candidate from the White House. The defeat of Hitler leaves the United States in a real sense the predominant economic power of the world. The economic leadership of the next generation belongs to the United States, and we shall find it difficult enough, on any basis, to maintain our ground."

The Test

Many readers have written to ask why they find it so difficult to prod the people in the Capital to answer their requests for legitimate information. Though it has always seemed to this reporter that members of Congress and responsible officials of government agencies were ready and prompt, in his innocence this reporter has always urged that the people out home be patient, that the correspondence coming in blizzards upon inadequately staffed congressional offices could not be swiftly answered for perfectly obvious reasons. It takes time to dig up the information, it takes time to write letters, and management of such correspondence is, naturally, particularly difficult to the members of Congress who have come here for the first time. The complaints, however, continued to come, and this reporter, therefore, determined to make a test of his own.

Twenty-four letters were sent to members of Congress and officials of government agencies, asking a simple response. Half of the letters were sent to representatives from states east of the Mississippi,

and half to those from states on the Pacific Coast. One letter went to one of the highest ranking Generals of the Army and another to one of the highest Admirals in the Navy's hierarchy. The response required was based on exactly the same query. The test letters were sent by special delivery mail in order to provide an emphasis.

Results

Out of 12 letters sent to Eastern Senators and Congressmen, 10 elicited prompt answers. So did the letter addressed to the admiral. On the other hand, only four of those from the Pacific Coast replied, and there was no reply from the general. Now, almost three months have elapsed since the test was made, and there have been no answers. Hence it is fair to assume all members of Congress, and the general, have had a fair chance to reply, and that they will not answer. It is also fair to assume that if they treat a constituent in the same manner, it is easy to understand why the people two or three thousand miles away feel rather peevish.

The test was fair because the letters went to persons in government who personally know this reporter, or have knowledge of his reasons for asking questions. It would have no point to enumerate the names of those in the East to whom the letters were sent, or to mention the name of the admiral, because he has nothing to do with Western affairs.

It should be interesting, however, to list the names of those who represent the West Coast to whom the queries went. They are Senators: Magnuson, Washington; Downey, California; Morse, Oregon; Mitchell, Washington. Congressmen: DeLacey, Washington; Mott, Washington; Izac, King, Miller, Havenner, Lea, and Doyle, all of California.

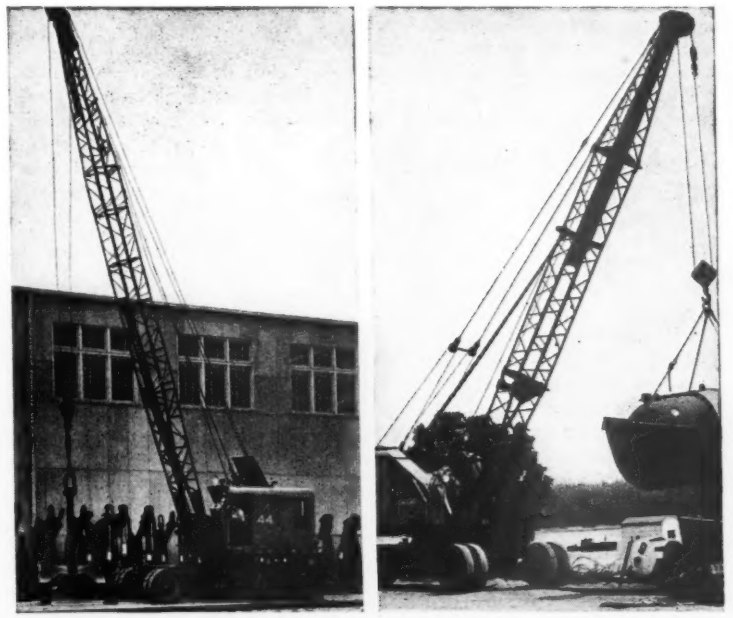
Those who replied promptly are Senators Magnuson and Morse, and Congressmen DeLacey and Doyle.

Those who absolutely ignored the query are: Senators Downey and Mitchell, and Congressmen Mott, Izac, King, Miller, Havenner, and Lea. The general who has never answered is Gen. Brehon V. Somervell, Commanding General, Army Service Forces.

This discussion has no immediate moral except it proves, so far as the West Coast is concerned, that those who have complained are right, and this reporter is wrong. But it also indicates that more business-like courtesy in congressional and government offices may be a good investment for those who depend upon public good will for the support of the things they do.

By the time this will appear in print Alaska will have the greatest invasion by congressional committees, and federal officials that has ever taken place. Despite Army hush-hush it is known some of the members of the parties may go as far north-

These Naval Pachyderms



OFFICIAL NAVY PHOTOGRAPHS

move the burdens of Victory

Osgood Mobilcrane (lifting battleship anchor) and General Supercrane (with service boat) on the job at Bremerton Navy Yard and Keyport Torpedo Station.

Navy building of ships and ordnance to go with them is vital to Victory. And at the great Navy Yard at Bremerton, and its affiliated Torpedo Station at Keyport, vast tonnages of heavy, cumbersome materials must be constantly on the move to provide the weapons of war—on time.

Contributing to the speedy efficiency of these and many other shipyard operation bases are Osgood Mobilcranes and General Supercranes. These powerful, versatile, "mechanical beasts" are forever on the job—lifting, hauling, positioning—everything from steel hull plates to prefabricated deck sections.

More specifically in terms of your own requirements, put these facts in your post-war equipment file:

★ Mobilcranes and Supercranes ride on rubber tires, reducing to a minimum wear and tear on roads, docks and runways; require no special rails or tracks.

★ One man to drive and/or operate the crane, thus saving manpower and money.

★ One engine does the work; moves the outfit, operates the crane, saves fuel.

★ Mobilcranes and Supercranes are world-famous for ruggedness, power, ease of control and maneuverability.

For Further Information Contact
HYMAN-MICHAELS COMPANY, San Francisco - Los Angeles
WALLING TRACTOR & EQUIPMENT CORP., Portland
M. M. McDOWELL & SONS, Seattle

ONE-MAN CONTROLLED • ONE-ENGINE OPERATED • RUBBER-TIRED

THE OSGOOD CO. MOBILCRANES

THE GENERAL EXCAVATOR CO. SUPERCRANES

MARION, OHIO

west as Attu; and that others will take more than a month before they start back over the Alaska highway.

Say-Nothing Policy

Foreign Economic Administration, long an incredible mess in government, has an acting information officer from New England, reported to have been a plumber before he came into this service. His name is James F. Roche. He deals with all those who require information for any purpose whatsoever. He was asked recently to arrange for the transmission of some legitimate information by an official of the FEA on the Pacific Coast to an editor on the Pacific Coast. The editor had courteously volunteered to submit to Mr. Roche for approval anything he wrote before it would be published. Mr. Roche replied: "I will not permit anyone anywhere to give out any information to anyone." There is no doubt that Mr. Roche has misunderstood his function as a servant of the taxpayers. They are supplying the billions which provide the FEA with the funds out of which Mr. Roche draws his fraction. This spirit reflected in the Roche incident is unquestionably the reason FEA has so swiftly plummeted to disgrace in Washington. There will probably be some sort of official inquiry into the Roche incident. It also is quite generally assumed that FEA will be given a treatment which will distribute its functions among a number of other agencies with its foreign functions going to the State Department, and its commercial operations to the Commerce Department. Its hush-hush, Sherlock Holmes and Nick Carter activities, already have passed into limbo, together with the comic opera characters who brought so much fantastic color into its operations.

S. F. OPA District Hits Efficiency High

While the operating cost of the OPA to taxpayers throughout the entire country is $1.33, the operating cost of the San Francisco District of the OPA to taxpayers in the district was better than 42 per cent less than that of the national average, or only $0.76 per capita.

The San Francisco district includes 16 counties extending along the coast from Monterey to the Oregon Line. Population of the district, handled by 900 paid employees of the OPA, is over 3,000,000 or better than 2 per cent of the entire country.

Arizona Sponge Iron

Tests of low grade Arizona iron are being conducted by the U. S. Bureau of Mines to determine the feasibility of establishing a sponge iron industry in that state. Reason for carrying out the tests is that if a satisfactory sponge iron could be produced it would be of assistance to Arizona's copper mining industry.

Southern California Squawks to WPB's Krug

WHEN "Cap" Krug, chairman of WPB, was on the Pacific Coast recently, he met informally with some leading industrialists in Southern California and heard some of their observations and complaints. For the light that their views throw on present conditions, they are summarized as follows: giving each individual a number instead of his name:

No. 1. Costs of steel here can be competitive with prices elsewhere. Deliveries on machine tools worse now than at any time yet, and the same is true on electric motors. Old customers are being taken care of even on orders for reconversion purposes, while war orders wait. Difficulties in getting labor for construction work also are plaguing. "Never saw so much loafing in my life."

No. 2. This company was 90 per cent on war orders but is now in termination, yet at the same time is increasing its facilities. "I believe we can keep up our volume of business"—one of those industries which will have no serious reconversion problems.

No. 3. Local industry will need many special purpose tools, such as are owned by old established industries in the East. Local war plants are overloaded with standard tools such as turret lathes, but short on multiple purpose tools to do a variety of jobs incidental to civilian production. Manpower still pretty tight and hard to get. Lack of postwar planning on the part of many "war babies" will cause plenty of casualties.

It's one thing to write copy for the company's house organ on postwar production which will give everybody jobs, and another thing to get such stories believed. Employees demand tangible proof, and they aren't going to put much stock in nebulous talk of civilian production unless they see some real engineering work and some toolmaker's hours being put in. You can't fool them—you must "put up or shut up." They know there will be a substantial dry spell before new jobs can be created for them.

Many uncashed CMP tickets in the United States are tieing up steel that should be put into circulation. This is making it tough for stove and water heater manufacturers.

No. 4. Difficulties completing homes for lack of nails, shingles, plasterboard, and lumber. Said 2,000 to 3,000 families are being evicted each month in Southern California and that these people must be housed.

The fact that there is a tight labor market shows that private industry is absorbing people as fast as they are being released. This is exactly what should happen and the problem is being handled in exactly the right way.

In response to these complaints, Mr. Krug said CMP allotments are being checked but there was little hope of getting more steel sheet before fall. "In the fourth quarter we can get the minimum amount for all users, if everybody will play ball—and we are taking steps to see that all play ball. In the first quarter of next year there should be enough for all, although transportation will be a bottleneck."

He answered the protests regarding construction very briefly with a statement that most construction materials will be tight as long as the Jap war continues. "If you can't get enough materials to build the things you think you need, I'm afraid you will have to get along without them." Just having returned from Seattle and a meeting with the lumber industries, he had only bad news to report, with production still going down hill, while war demands continue at peak.

• Douglas Fir Plywood Assn. officers. From left: Treasurer, J. P. Simpson, Buffelen Lumber & Mfg. Co. of Tacoma. President, Thomas B. Malarkey, M & M Wood Working Co., Portland. Vice-President, Arnold Koutonen, Olympia Veneer Co., Olympia. Not shown is Secretary Herman E. Tenzler of the Northwest Door Co. of Tacoma.

W.S.C. Expands Research Program

In order to assist Pacific Northwest industries in utilizing the abundance of local raw materials as well as surpluses and by-products from the agricultural and forest industries of Washington, a permanent industrial research division will be set up by Washington State College.

Eri Parker of W.S.C. faculty has been appointed acting director, and a state-wide industrial council will be set up to guide the policies. Projects will include those undertaken on the college's own initiative, with results open to all, others having sponsors who contribute funds, with results also open to all, and private projects paid for by the contributor, with the results supplied only to him.

Most of the business concerns and manufacturers in the area, the college points out, are not large enough to have either sufficient technical staff or laboratory facilities to support extensive research into product development, such as re-design, new materials, uses for waste by-products and preliminary testing.

The Washington legislature has approved a budget of $146,000 a year for increased personnel and laboratory facilities. The work to be undertaken will include:

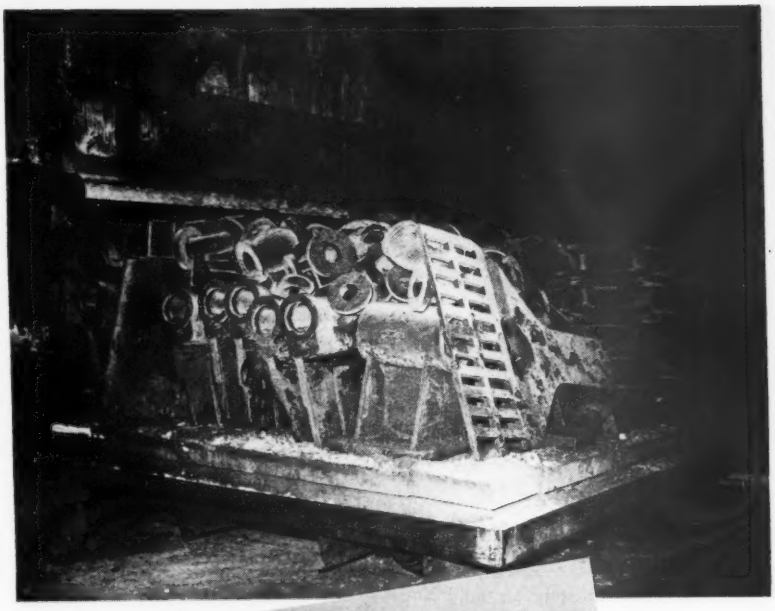
1. Investigation and testing of Northwest mineral deposits to determine suitability for extraction and processing;
2. Determination of the usability of available raw materials and processed resources by Northwest manufacturers;
3. Re-design of manufactured products to include materials that are or may be made in this area, such as plastics, light metals, etc.;
4. Design, development and testing of experimental models of new products (not production testing);
5. Study of production methods and techniques to increase efficiency and reduce costs in industrial plants; and
6. Investigation into further uses of farm, forest and manufacturing wastes, surpluses and by-products to increase profits to industry.

Light Metals Committee

D. K. MacDonald of Seattle, chairman of the Western States Council light metals committee, has made a tour of the light metals plants in the West to familiarize himself with their operations, and has written the various light metals producers to ascertain their postwar intentions. When these have been received, he expects to call the committee together for its first session.

Long Life Batteries

California Walnut Growers Association, who use battery-powered electric trucks in their Vernon warehouse, have some batteries 10 years old still in active service. Batteries are re-charged after six to eight hours, and the power is never allowed to get low.



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Maintenance Notes . . .

MAINTENANCE is one of the most effective methods of insuring a profit. It is a balance wheel that keeps the plant operating smoothly, efficiently and economically, and saves the high cost of emergency repairs. The accompanying material is part of a series of editorial features dealing with maintenance in its varying forms and aspects.

Animal Glue Valuable To Maintenance Men

Since animal glues will give a tensile strength of from 5,000 to 10,000 pounds per square inch. When properly applied to wood, they form a valuable tool in prolonging the life of wooden factory or office equipment.

Because of the ease of preparation pearl and ground glues are usually preferred by factory maintenance men. To assure the best results in their use the following procedures are used:

After determining that all utensils, water and brushes to be used are thoroughly clean, the solution is prepared by mixing cold water and glue in the proportion of one and one-half parts of water to one part of glue. The mixture is then allowed to soak for approximately an hour and then heated in a jacketed kettle to 140 degrees F. During heating the mixture should be stirred repeatedly.

Since overheating weakens the glue, the solution should be maintained at an even temperature and applied quickly. It can be applied either with a brush or squirted into dowel holes. The thinner the glue film, the stronger the resultant joint.

After application of the glue and assembly of the joints, clamps are applied to give the initial set with pressures of 150 to 200 pounds per square inch for woods of ordinary density. The clamps are removed at the end of one day and the joints are then allowed to season for approximately 48 hours in order to get the best results.

One of the best indications of how perfect the joints are resulting from animal glue, as well as their strength and permanency, lies in the glue-bonded articles found in the tombs of Egyptian kings. After 3,000 years they are in almost perfect condition, according to the findings of archaeologists.

Chemical Removal Used For Boiler Scale

Far superior to old methods of "acid cleaning" a new technique for removing boiler scale has been evolved that dissolves and removes the scale without injury to the metal parts of heat exchange equipment.

Known as the Dowell Process, and the result of years of investigation, the work starts with laboratory tests of the boiler scale or sludge taken from the unit to be cleaned. After the proper inhibited solvent has been decided on it is taken to the unit with all the necessary heaters, gages, thermometers and other equipment used for the job. Under the direction of specially trained treating engineers working with the cooperation of plant engineers the work then gets under way.

By means of tests taken periodically throughout the four to six hours required by the process the progress of the solvent's action is carefully checked. After it has been drawn off the unit is flushed with water at the proper temperature, and usually a hot boil with soda ash follows.

Of particular interest to safety engineers is the fact that the process readily reveals any leaks in the unit or imperfections. Furthermore, many of the hazards met with in the mechanical cleaning of such units are virtually eliminated.

Glycerine Used To Prevent Rust

Recently developed use for glycerine is in the manufacture of rust preventing and inhibiting compositions which also have lubricating qualities.

Applicable by either painting or spraying, the composition, when applied to iron or steel that will be exposed to moisture or dampness for an extended period of time, prove most effective in preventing oxidization. Use of the product patented by R. H. Bruni and J. W. Jones, is of particular importance in preventing the corrosion of nuts and bolts, thus facilitating their easy removal.

While it is especially good for painting marine motors in salt-water vessels, a still more important use lies in its application on auto rims where it gives a most satisfactory performance in maintenance.

Glass Fiber Serves For Sound Insulation

Success of the use of glass fiber in providing heat and sound insulation in Boeing C-97's, super troop and cargo transports, foreshadows greater industrial uses for it after the war.

The fibers are microscopically fine each one being about only five one-hundred thousandths of an inch thick.

Extensive tests conducted to determine the comparative values of the fiber glass and other insulating materials were concerned with thermal and acoustical efficiency, incombustibility, resistance to rot, weight and moisture pick-up.

The factor of moisture pick-up is of special significance owing to the absorption of moisture by planes in flying through humid atmosphere and resultant increases in dead weight. With the fiber glass insulation increases in weight were so slight in extensive moisture pick-up tests as to be negligible, and the installed weight of the insulation proved to be 225 pounds lighter than that of any of the alternative types of material.

In its conductance of heat the lining was found to be 6.3 per cent lower than that of any other type, and in preliminary flight tests its acoustical efficiency was satisfactory.

Other tests showed the substance to be almost completely free from any tendencies to combustibility or rot.

Total weight of the 7000 square feet of lining used, approximately one half-inch thick, for the interior of the C-97 was only 182 pounds. The lining was formed by bonding the fibers with a thermosetting resin. An incombustible fabric was then used to cover the lining before it was installed.

Paint Cuts Waste In Shipyard Rivets

With approximately 70 different sizes of rivets being used in the production of pontoons at Oregon Shipyard, many of them differing in size by only a sixteenth of an inch, it was decided that the most satisfactory method of enabling riveters to make sure they were using the proper size was to paint them.

Obviously it was impractical, as well as unnecessary to use 70 different colors. Only eight colors were employed, distributed in such a way that any two rivets painted the same shade would differ sufficiently in size to be readily distinguishable by the riveter.

Each pontoon required approximately 8,000 rivets. Of the 70 sizes used, hundreds of one size were needed and only four of another. With so many in such different sizes employed in the construction of each unit the problem of waste was considerable.

Though in ordering the rivets, 10 per cent was allowed for waste, it was found that wastage was so high, coupled with the ease of confusing rivets of nearly the same size, that savings in cost as well as an improvement in construction efficiency would be obtainable through the use of paint.

About the Kaiser Car

SEMI-FLEXIBLE fenders and the extensive use of fiber and plastics first reported as important characteristics of the new Kaiser car made many feel, that it, like the atomic bomb, marked another step forward into the age of Flash Gordon and Buck Rogers.

Later reports, however, played down the likelihood of any startling innovations for the new machine which Henry J. Kaiser says will be on the highways at an indefinite date next year.

But though the dust from the first burst of publicity is now fairly well settled, leaving the public still in the dark as to what the new machine will look like, when it will appear, and where it will be constructed, there is one certainty and one excellent probability.

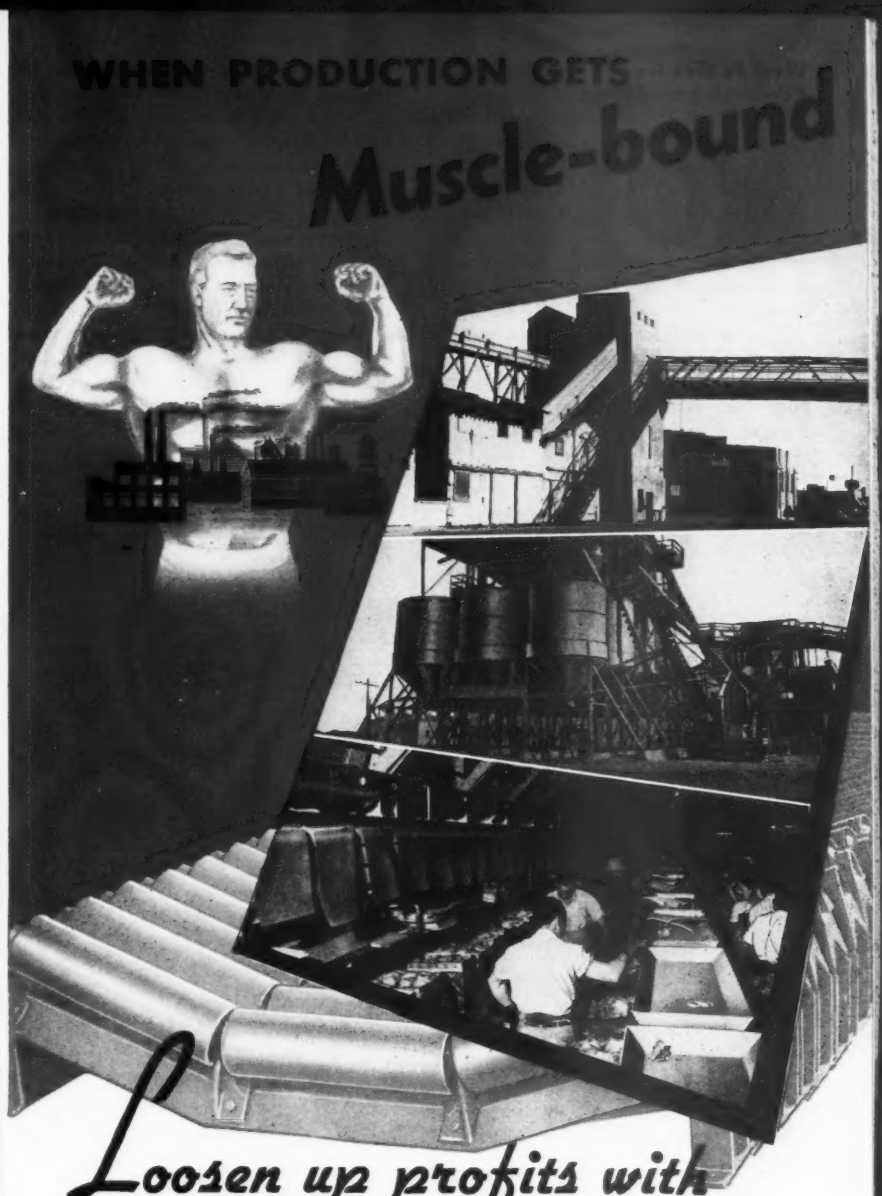
The certainty is that the new car will be built in the West and the probability is that it will be near the Kaiser steel plant at Fontana.

Yet another certainty may be remarked about the Kaiser car—if it were made of even concrete it would still sell so long as it would run, providing it would get into production before other auto plants had made a big step forward towards filling the tremendous demand for new cars now existing in America and becoming daily more acute.

The fact that Howard A. Darrin, who designed cars for such stars as Clark Gable, Bing Crosby, and Lord Louis Mountbatten, is chief designer for both Kaiser and the Frazer car, (the latter is the more expensive counterpart of the cheaper model) means that the combination of the Kaiser and Graham-Paige interests means business in a great big way.

While many of the smart boys have pooh-poohed the whole idea, even irreverently suggesting that the Kaiser car would probably be spelled "Kaiser-Kar" in an effort to take away business from the makers of the "Kiddie-Kar," it should not be regarded as a sign of weakness that the company has a capitalization of only $5,000,000 to begin with.

Paltry as that sum may be in an age of billions one should not lose sight of the men in back of it. While it may have been touch and go occasionally for Joseph W. Frazer, now general manager of the Kaiser Frazer Corporation as well as president of Graham-Paige, during his years in the auto-makers' jungle of Detroit, the fact remains that the tigers didn't get him. Kaiser, of course, is no babe in the woods, either, as a result of his years in the highly competitive rough-and-tumble of western business.



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West to Get New Research Foundation

To the five independent research foundations now existing in the country—all of them in the East, Midwest and South—a sixth is soon to be added in the West.

Name of the new organization will be the Pacific Research Foundation. Its location, at present undecided, will probably be in either Northern or Southern California.

Purpose of the organization, which will operate on a non-profit basis, will be to conduct research for both large and small businesses in the West in the fields of chemistry, metallurgy, bacteriology, electronics, ceramics, mining, agriculture, mechanical and structural research.

Plans for the foundation call for a plant area of about 25 acres with buildings, on which construction is to start immediately, costing in excess of $1,000,000. Total funds available to the foundation in the beginning will be about $5,000,000. Space and accommodations for the newest types of scientific equipment will be incorporated in the buildings.

Though the foundation will be endowed by private industry exclusively, all businesses will be able to make use of the foundation's services at a cost which will not exceed the costs of the time spent by scientists and engineers on the project plus the out-of-pocket expense for materials and other services.

The foundation will operate on a basis similar to that of the Batelle Memorial Institute of Columbus, Ohio and the Midwest Research Institute of Kansas City. The number of workers of all kinds to be employed by the foundation will be from 600 to 1,000.

Retroactivity In Voluntary Wage Cases

Of particular interest to employers who wish to avoid the "dead horse" payments inherent in the settlement of many retroactive wage increases is the recent enunciation of "Policy on Determination of Retroactivity in Voluntary Cases" as set forth by the 12th Regional War Labor Board at Seattle.

1. Where a Company and Union submit an application, the date they propose as the retroactive date shall be accepted so long as it can be justified:
   a. as the date of the expiration of their preceding contract;
   b. as the date on which negotiations were formally opened if there was no preceding contract;
   c. any later retroactive date than specified in "a" or "b" where agreed to by the parties.
2. If no date is specified, the application shall be approved as of the date on which the application was signed.
3. In unilateral wage applications the date proposed by the Company shall be accepted so long as it can be justified:
   a. as the date on which the proposed increase was announced to the employees;
   b. as the date on which the Company decided, as evidenced by some written document, to make the wage increase;
   c. as the date on which the application was signed;
   d. any later retroactive date than specified in "a," "b," or "c."
4. Notwithstanding what has been set forth above, an earlier retroactive date may be approved in cases involving intra-plant inequalities.
5. The Board may take account of exceptional circumstances where the parties agree upon an earlier date.

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Los Angeles M. and M. Surveys Postwar Factors

Five questions to which anyone, as well as the members of the Merchants and Manufacturers Association of Los Angeles would like to know the answers, conclude a 16-page survey analysis recently prepared by the association on post-war factors in the United States.

The questions are: 1) shall free enterprise have the same opportunity it has had after other great wars, or shall it be restricted by government controls; 2) shall we make prompt release of government controls, or shall government continue to control prices; 3) shall we extend tremendous credits so that foreign nations may buy our goods and services; 4) shall the rates of federal taxation be reduced; 5) to what extent shall the dole be substituted at the expense of possible productive employment?

Quoting Patrick Henry, "I have no way of judging the future but by the past," the survey makes an extended analysis of the aftermath of other wars which the country has fought. Movements it discovers after other wars are, in their sequence: 1) *hesitation* for a few months after armistices, temporary business recessions; 2) *upswing*, for one or more years of activity; 3) a *slump*, temporary in extent; 4) *reasonable prosperity* over a period of some years; 5) *depression*, arising from over optimism and speculation.

Solon Says East Lags In Reconversion

The statement that people on the West Coast "are 'way ahead of the East as far as reconversion and postwar projects are concerned" was made by H. J. McGlinchey, M.C., Penn., Demo., and one of the three members of the House Rivers and Harbors sub-committee who recently pledged additional legislative support for further development of the Columbia River basin.

The pledge to support more legislation for the continued development of potential power and other assets of the Columbia River basin was made at a Portland Chamber of Commerce dinner for leaders of river transportation, river works and maritime commerce.

Lockheed Produces New Navy Bomber

At about the same time the atomic bomb made its first appearance in history, another new weapon, a seafaring Navy bomber, the Lockheed Harpoon, was unleashed against the Japanese for both attack and reconnaisance purposes, according to an announcement by the Lockheed Aircraft Corporation.

The new plane has a speed of better than 300 miles an hour and a range well over 2,000 miles.

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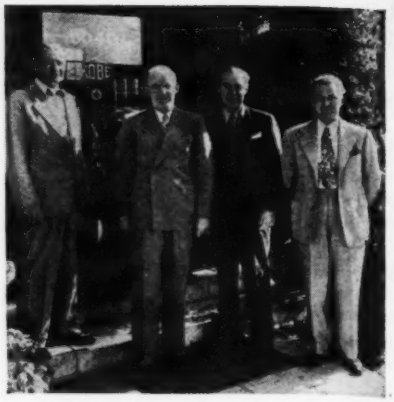
WESTERNERS AT WORK...

California

George E. **McNulty,** former president of the George E. McNulty Company, Ltd., has been named president and general manager of Reeder International, importers and exporters, San Francisco, with branches at leading Pacific Coast ports . . . James L. **Ray** appointed head of gas and steam-turbine engineering department of Joshua Hendy Iron Works in San Francisco; Charles H. **Hirst** appointed sales manager for mining equipment and machinery, having been supervisor in the ordnance division . . . T. C. **Ingersoll,** while continuing as manager of Bethlehem-Alameda Yard, Bethlehem Steel Co., becomes manager of the San Francisco yard, while F. S. **McGuigan** has been appointed manager of the Alameda yard. E. C. **Rechtin** continues manager of Bethlehem's San Pedro yard; W. M. **Laughton,** formerly general manager of San Francisco, Alameda and Bethlehem-Alameda yards, appointed general manager Pacific Coast shipbuilding division. . . .

Captain G. M. **Keller,** USNR, detached from duty in Washington and assigned to post of Director of Civilian Personnel for Twelfth Naval District with headquarters in San Francisco . . . M. M. **Trembley,** San Francisco railroad labor official and G. B. **Herington,** Pacific Coast Office of Defense Transportation manpower head, appointed as regional representatives in charge of newly created West Coast Field Offices of ODT's Division of Transport Personnel located in San Francisco and Portland, replacing the former coast office at San Francisco . . . V. D. **Dardi** elected as director and chairman of Executive committee on Board of Directors of Blair & Co., Los Angeles; Charles **Crouch,** president of Lucky Stores, subsidiary of Blair & Co., and William H. **Keesling,** member of law firm of Keesling & Keil, elected directors . . . A. K. **Davis,** previously assistant director Los Angeles Electronics Division of Altec Lansing Corporation, promoted to director of company . . . Robert C. **Williams,** former disputes officer of Nonferrous Metals Commission of the National War Labor Board, appointed director of disputes of Tenth Regional WLB, succeeding Gene L. **Green,** resigned. . . .

Edward P. **Rhodes,** Jr., formerly chief project engineer for Bell Aircraft Corp., relieving Chief Engineer Ben T. Salmon of detail work, appointed assistant chief engineer of Ryan Aeronautical Company . . . Rubin **Lewon,** under direction of recently appointed Dr. A. M. Erskine, Director of Research and Development for both Paraffine Companies, Inc., and Plant Rubber & Asbestos Works, appointed manager of research for latter company; Louis L. **Collonge** appointed superintendent of the "Precision-Molded" 85% Magnesia plant at Emeryville; E. Fred **Karklin** selected as superintendent of Redwood City plant and salt works opera-



• Three of the Dresser Industries group at recent meeting at Huntington Park, Calif. From left: L. R. Wells, pres. International Derrick & Equipment Co. of California; C. J. Coberly, pres. of Kobe, Inc.; J. B. O'Connor, executive vice-pres. of Dresser; E. J. Weis, vice-pres. Pacific Pumps, Inc.

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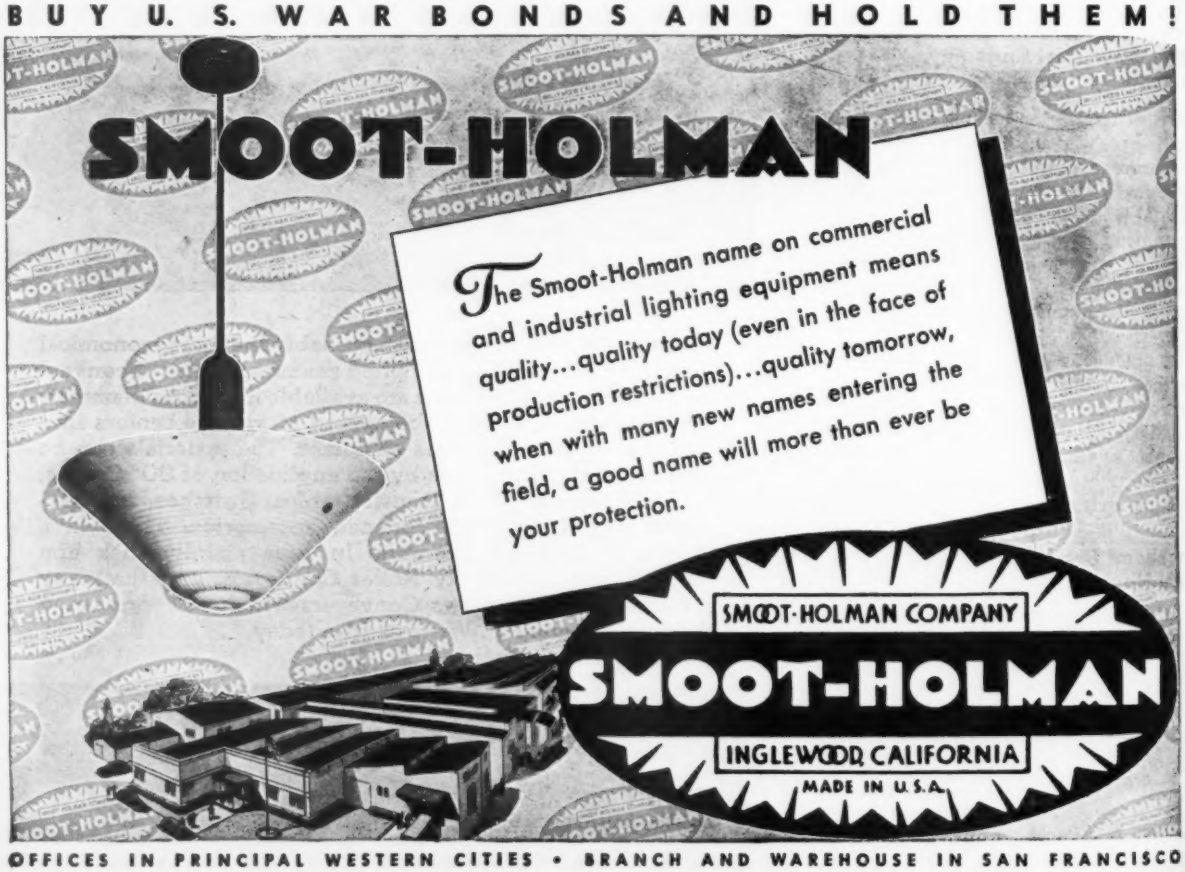
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tions; Walter **Rohde** appointed manager of production control with headquarters at San Francisco . . . Charles A. **Butcher,** formerly manager of Pacific Coast manufacturing and repair department, Westinghouse Electric Corp., Oakland, appointed assistant general manager, Crocker-Wheeler Div., Joshua Hendy Iron Works, Ampere Station, N. J. . . .

Harold **Wright,** general manager Los Angeles Chamber of Commerce, elected vice president, Western States Council . . . E. E. **Ratcliffe** appointed division industrial engineer, Pacific Division, Continental Can Co. with headquarters in San Francisco; Stanley **Bixler,** Los Angeles plant . . . A. E. **Baker,** logging superintendent at Susanville operation of Fruit Growers Supply Company, named general logging superintendent of entire company operations . . .

Ralph B. **Smith** of Van Nuys, replacing Robert R. **Miller,** elected new corporation secretary at Menasco Manufacturing Company of Burbank . . . John L. **Gladden,** general manager of Kinner Motors, Inc., Glendale, succeeds Earl **Herring** as president, executive staff including G. **Brashears** vice president, and J. Murray **Wilson** controller . . .

Dr. Henry F. **Grady,** president, American President Lines, San Francisco and Charles A. **Kirk,** vice-president, International Business Machines Corporation, Endicott, N. Y., elected members of the board of directors of National Foreign Trade Council . . . Wallace I. **Terry,** Jr., director of safety for the Moore-Drydock Co., Oakland, made chairman of the National Committee for Conservation of Manpower; and Clarence W. **Sherman,** head of the personnel department of Puget Sound Power & Light Co. of Seattle named Washington state chairman . . .F. G. **Gardner,** previously Los Angeles representative for Federal Telegraph and Radio Corp. appointed general manager of Universal Microphone Co., Inglewood . . . Robert L. **McKee** of Hendy appointed Director of Personnel, succeeding Floyd T. **Lovens.**

Nevada

Paul **Hett** promoted to position of general superintendent of mining for Nevada Mines Division, Kennecott Copper Corporation . . . Ted E. **Drennon,** Nevada district manager of Home Lumber Co. elected vice president of the company.

Oregon

James W. **Hubbard** appointed assistant manager of Springfield Plywood Corporation, Springfield . . . George P. **Messenger,** formerly chief metallurgist of Kensington Steel Co., Chicago, becomes associated with Rushlight Steel Works, Portland, as works manager and metallurgist.

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• Responsible for the executive end of the Crawford and Doherty Portland production of triple expansion compound steam marine engine castings for Liberty ships, tonnage output 8,561 tons, are, left to right, rear row: A. Holmes, Superintendent; C. Case, Purchasing Agent; M. H. Arnston, Personnel Mgr.; J. B. Hunt, Sales Mgr.; V. O. Stirnweis, President; D. B. Card, Secretary-Treasurer. In front row: H. A. Packard, Assistant Secretary; R. Thompson, Paymaster; V. McCoy, Stenographer, and W. L. Beals, Office Manager.

WESTERNERS *(From page 69)*

Washington

Harold K. Wilson, architect of Hoquiam, Wash., named southwestern representative with headquarters in Chamber of Commerce Building, Los Angeles . . . Pat Johnson, Puget Sound Power & Light Co., Seattle, elected president Northwest Electric Light & Power Association; T. E. Roach, Northwestern Electric Co., Portland, named vice president; and Berkeley Snow, Portland, renamed executive secretary. Vice presidents for states are C. J. Strike, Idaho Power Co., Boise; F. P. Hogan, Montana Power Co., Butte; Geo. T. Bragg, Pacific Power & Light Co., Salt Lake; W. L. Thrailkill, Washington Water Power Co., Spokane, and W. C. Mainwaring, British Columbia Electric Railway Co., Vancouver, B.C. . . . H. E. Simi, formerly chief engineer of the Twin Coast Company of Kent, Ohio, and then the Timken-Detroit Axle Company, joins staff of Kenworth Motor Truck Corporation, Seattle, taking charge of bus engineering and production.

Protests Against ICC Rate Decision

The first protest to be filed against the Interstate Commerce Commission's recent decision reducing freight rates on manufactured products in the Middle West and South and raising them in the East, was that of the Association of Western Railways. The protest said the decision was one of "appeasement" and that the ICC had disregarded the fact that the East is primarily a manufacturing territory and the West agricultural.

New England governors and commercial organizations and shippers along the Atlantic Coast generally, plus others in Chicago and Wisconsin territory followed. September 3 is the last date for filing petitions.

Meanwhile the public utilities commissions in the 11 Western states have appointed a committee to study the effect of the decision on conditions in this area. John H. Carkin of Oregon is chairman. Other members are: Howard Freas, California; Hugh A. Dressel, Washington; H. D. Schaeffer, Montana; M. P. Holt, Wyoming; Chas. A. Root, Utah.

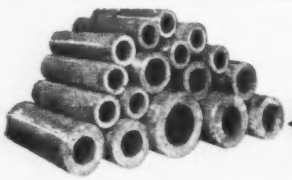
Magnesium Limbs

Artificial limbs of magnesium are being manufactured by Magnesium Casting Co. at Las Vegas, Nevada, of which James Bradford is general manager. Another manufacturer of limbs is Rudolph Hauck in San Francisco, as reported several months ago in *Western Industry*.

KINGWELL

PHOSPHOR BRONZE

BAR STOCK



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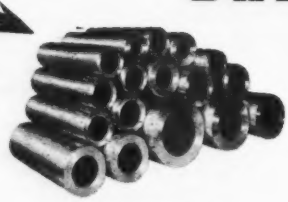

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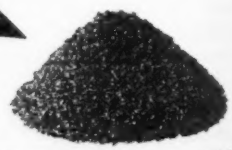

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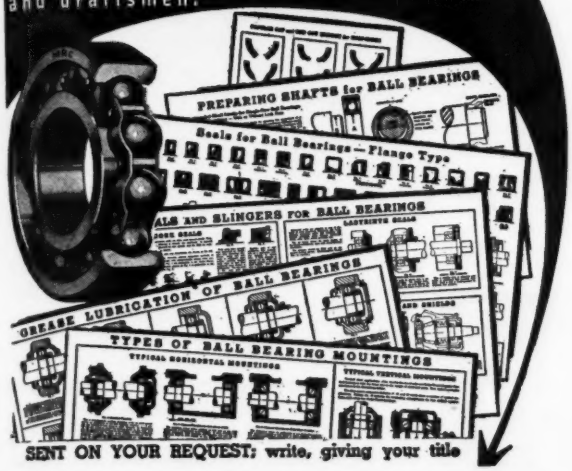
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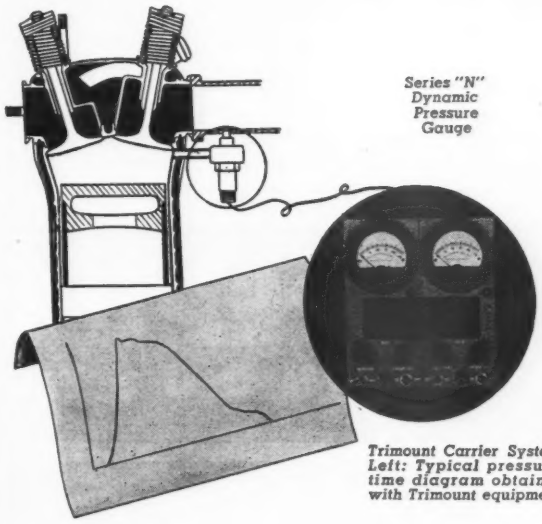

Series "N" Dynamic Pressure Gauge

Trimount Carrier System. Left: Typical pressure-time diagram obtained with Trimount equipment.

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REGIONAL REVIEWS

SIERRAS TO THE SEA

HERETOFORE we have studiously avoided a Regional Review from Northern California, in view of the fact that *Western Industry* is published in San Francisco. In common with all other magazines, readers are prone to complain that the rest of the area served besides the point of publication never gets any news. In fact it is likely to be just the other way around, and home base doesn't get as much attention as it should, just because the publication leans a bit backward.

Now, with all the other Western areas covered—the rest of the Pacific Coast and the inland region—it seems safe to give the San Francisco Bay area and the Sacramento and San Joaquin Valleys a break. Not that we are committed to a promotion campaign for Northern California, for some of the news reported in this Regional Review from time to time may be on the dark side instead of the bright.

Undoubtedly the cancellation of war contracts will temporarily hurt the area somewhat, because this is the first time there has been any deep slash in ordnance production. The shipyard program had been gradually tapering off anyway, and in recent months the yards have been bothered more with labor shortage than with prospects of unemployment. Aircraft does not mean much to Northern California, except for a few things like the Lockheed branch plant in Fresno.

On the other hand, the fact that the Navy has been built up to such enormous size, and will be concentrated in the Pacific Ocean until the Japanese situation is thoroughly straightened out, means that big yards at Mare Island and Hunters' Point will be busy for a long time to come, as will the private yards engaged in repair work.

An example of the amount of work the Navy brings is in the overhaul of electric generators for submarines. Early in the war, when we were not too well supplied with submarines in the Pacific, they were kept in operation until it was no longer safe to do without an overhaul. Later, when the supply had increased, it was possible to bring the submarines in on a regular schedule for overhaul.

With the arrival of peace, and the necessity of using warships only for patrol operations, it may be possible that the volume of overhaul in Pacific ports will increase still further; also there will be considerable reconversion of emergency aircraft carriers to cargo vessels. In the long run we may see the remodeling of cargo ships to give them greater capacity.

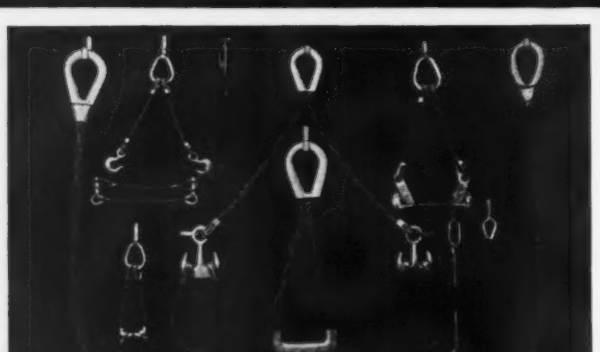
New Factories to Start

Even if there is considerable exodus of population resulting from the decrease of shipyard work, there will still be demand for a big residential building program. Also there will be a large amount of equipping of factories that have had to mark time during the war; many eastern concerns have been "ready to go" as soon as peace was declared and materials became available. San Jose, Stockton and other cities are among those who will be thus benefited.

A new era of ocean transport in and out of San Francisco Bay seems to be in prospect. Twenty projects totaling $55,700,000 for transport facilities along the east bay harbor front are in prospect, while on the San Francisco side there are plans for a foreign trade zone, and also for modernizing the docks.

On the Oakland side two mole-type piers are proposed, to cost $14,500,000, plus $5,050.000 for an outer harbor terminal wharf, a new oil pier to cost $350,000, $100,000 to be spent on the Seventh Street unit and $2,125,000 on the Ninth Avenue terminal on the Oakland estuary.

Call REPUBLIC INDUSTRIAL



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An entirely new development will be the north harbor, where some $15,000,000 will be spent.

At the Oakland municipal airport the program is $11,000,000.

Columbia Steel Company's cold rolled steel expansion at Pittsburg anchors heavy industry in Northern California still more firmly.

In San Francisco itself there is not so much room for industrial expansion, although a $5,000,000 apparel center project has been announced. The tendency seems to be toward the city becoming more of a financial center, but in any case continued growth will necessitate subways or some other comprehensive plan for relieving traffic congestion. Some years ago the voters of San Francisco rejected a subway plan to cost about $70,000,000 in all, before the Municipal Railway and the Market Street Railway were consolidated. Now the coast is probably clear for resubmission, with much better chance for acceptance, but the cost undoubtedly would be far greater.

The entrance of Macy's into the San Francisco department store field through the purchase of the pioneer firm of O'Connor, Moffatt & Co., whose history dates back nearly to the gold rush days, is considered a good omen, in that so important a New York house should decide to come to San Francisco. Macy's will expand the O'Connor, Moffatt operations considerably.

Never-Ending Power Fight

The battle of Secretary Ickes to force the city of San Francisco to live up to the provisions of the Raker Act forbidding the resale of Hetch Hetchy power to the Pacific Gas & Electric Co. is not the last conflict in the northern part of the state between public and private ownership.

Now power from the Shasta Dam is becoming available, and a contract has been made to supply the city of Roseville at a price declared by the government to be much less than was paid the P. G. & E. Congressman G. P. Miller recently fanned the flame of conflict further by announcing that unless a power house was built at Antioch at the receiving end of a transmission line from Shasta Dam, to supply government power to the San Francisco Bay area, the differential in power costs as against the Pacific Northwest would be so great as to keep new industries out and send them instead to Washington and Oregon.

Construction of the first of Kaiser's postwar industries to be located in the Bay area is expected to get under way shortly after September 15. Seven and a half acres of Richmond waterfront property have been purchased for the site of the gypsum plant at a cost of $75,000 or $10,000 an acre. President of the company, which will go in heavily for production of building construction materials, is S. A. Perkins.

. . . economy keys to desirable high-lustre buffing . . . .

Northern Industrial Chemical Co., South Boston, Massachusetts—"Moulders of Plastics"—is making these parts for telephone instruments.

It's in the preparation for the buffing of these parts that the LEA Method and LEA Compound are helping the manufacturer to cut costs and produce better finishes. As stated by this company, "LEA Compound is working out satisfactorily particularly in removing flash on parts which have been rough sanded . . . LEA Compound allows us to produce a high-lustre on the moulded parts."

Being specialists in finishing and having years of experience and many grades of compositions from which to select, our technical men have been called in by hundreds of plants to advise on how to obtain better finishes at lower costs. Northern Industrial Chemical is one of these companies. If you have any finishing or burring problem in connection with metal, plastics or other non-metal parts, ask LEA how to do it best.

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How Utah Coal Men Met Peak Demands

BY A PROGRAM of cooperation that spread out retail and industrial deliveries throughout the year, instead of having them all bunched into a period of a few months, Utah coal producers have been able to meet war-time peak demands successfully. In 1944-1945 burning season there were only three or four situations when coal was in urgent need, but these did not approach a critical stage.

In the calendar year of 1944, more than 7,000,000 tons of coal were produced in Utah alone, far above peacetime production totals, and under serious manpower shortage conditions.

Of this total, some 2,170,000 tons were what is commonly called "special purpose coal," used for coking purposes for the steel plants. The balance, close to 5,000,000 tons was distributed to retailers, carload industrial consumers and military and naval establishments in seven or eight different Western states. From all reports, the distribution was impartial and fair to all concerned.

It became apparent early in 1943 that the mounting demands for coal could not be met unless all the coal mines could operate to full capacity for 12 months in the year, instead of curtailing production in the summer months, as has been traditional in the industry for many years. Consequently, Utah coal mining companies, in concert with others throughout the country, cooperated with the government in setting up the Solid Fuels Administration.

One of the major problems was to induce the retail trade that was dependent upon Utah coal to accept as much of the fuel as possible during the season of the year when the buying public was prone to forget about its requirements for the following winter. The result was Regulation No. 19 by the Solid Fuels Administration, issued March 30, 1944, requiring all retailers regardless of their location who market coal produced in Utah, to accept equal monthly shipments during the calendar year of their annual requirements. The same regulation No. 19 is continued in effect through the years 1945-1946.

To obtain full cooperation required constant education through newspaper articles, official bulletins and radio programs. The result was that the Utah producers were enabled intelligently to allocate their potential and expected production and to keep their mines operating full capacity throughout the calendar year.

Carload industrial consumers were also held to equal monthly shipments as nearly as it was possible to do so. While the Army and Navy were unable to anticipate their requirements to as great a degree, they cooperated to the best of their ability, thereby making the problem much easier to solve.

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FOR

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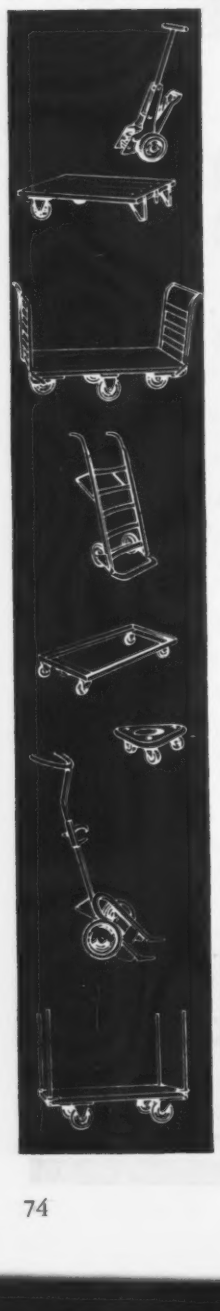

Put the heavy loads on wheels—call Colson Equipment and Supply Company. At Colson, every style and kind of truck is available from platform trucks with push handles, pipe stakes or side slats to the famous Colson Lift-Jack System with wheeled skid and lift jack. There are light, medium and heavy duty hand trucks . . . drum handling trucks . . . dolly trucks . . . furniture dolly trucks . . . and wagon trucks, as well as special tray trucks and clothes hamper trucks.

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Small Shop Wage Stabilization Set

In order to maintain stabilized wage conditions in the oil well servicing industry of Lea County, New Mexico, the Ninth Regional War Labor Board at Denver has recently withdrawn all Lea County shops engaged in welding work for the industry regardless of whether they employed less than nine workers from exemption from its general order No. 4.

Under the general order employers of eight workers or less were exempt from wage controls if they were not a party to a master or similar agreement covering their employees, or if on any given year they had made wage or salary adjustments affecting eight specific employees, or if an exception had been made for their industry in their area.

REGIONAL REVIEWS

OLYMPICS TO THE COUER D'ALENES

THE impact of peace upon the industrial economy of the Washington area is certainly as difficult to evaluate as that of war would have been late in 1941. Indeed, about all that can accurately be said of it right now—to use a single word—is that the impact will be great.

Naturally enough, a blanket word like "great" raises a flock of questions in the minds of industrialists, chief of which are just how great will the impact be and where and how it can be modified and directed so that the larger part of its greatness will be beneficial.

Nearest approach to the answers of these questions so far as the state of Washington is concerned lies in the Pacific Northwest Product Survey, prime objective of which is to "establish and maintain a stable, balanced and progressive economy, through voluntary cooperation within the doctrines of private enterprise."

Method of Approach

Ways in which the Survey sets about accomplishing this purpose are contained in two main channels: preparations of a comprehensive analysis of every product group listed in Washington under the 1940 Census of Manufactures, integrating all essential factors with respect to design, manufacturing, merchandising and marketing; and clarifying the critical conditions which must be fulfilled before each of the various products can be produced and distributed successfully by any Northwest enterprise.

Success of a survey, of course, depends upon the thoroughness and skill with which it is carried out. Unless all factors are considered and carefully and accurately weighed, the survey will not give the results desired.

In the case of this particular survey every effort is being made not only to gather all the essential data, but to boil it down sufficiently that the person making use of it can get all the information necessary to his purpose with the greatest possible ease.

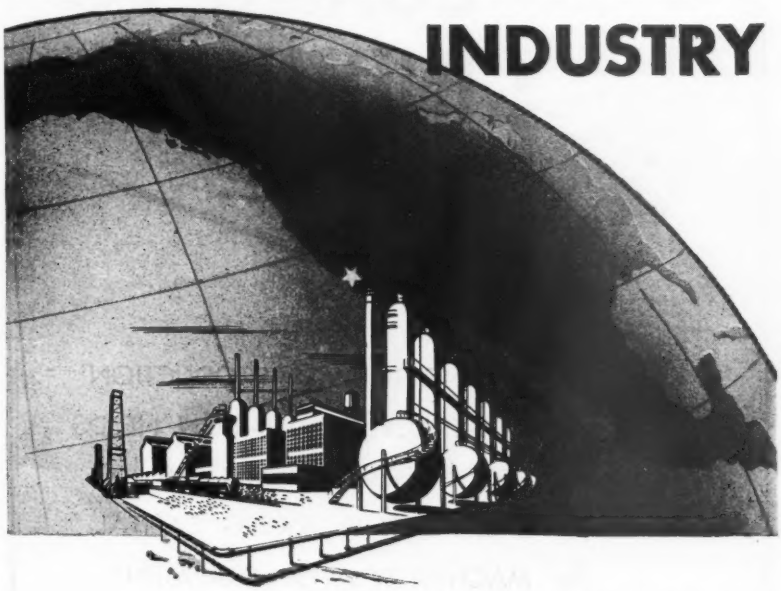
Steps Enumerated

Following are the steps taken in the survey in its study of a given product. First of all, every bit of descriptive material from the Census of Manufactures is reproduced on a selector card initiated for the product. Pertinent facts disclosed by special-panel meetings on light metals and on plastics are added. The card then goes to an Engineering Committee composed of specialists in engineering and production for that particular type of product. They consider the nature and extent of availability of raw materials, machine facilities, and labor skills; the best production policy as to degree of processing, type of operation, use as a capital or consumer good, and effective restrictions; the major relative cost factors; the kind and purpose of material substitutions; new developments in production methods, whether operational or technical; and special investigations which seem advisable.

If the product is a capital good, it is next considered by the Purchasing Committee; if a consumer good, by the Merchandising Committee; in some cases by both. After this, it goes to the Advertising and Marketing Committee. These three, working closely together, analyze the product as to its best market, whether local, sectional, national, or foreign; whether under a manufacturer's or a private label, and the best channels for reaching that market; the price class recommended; the probable extent of competition; the nature and extent of promotion required; the general factors affecting distribution, such as whether a demand for the product exists or can be created; the

(Cont'd on Page 76)

MAAS *Serves* WESTERN INDUSTRY



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Today the A. R. Maas Company continues to search for better ways to serve all industry, so that—war or peace—its products will have the perfection that modern production methods demand.

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"ARMed for Chemical Service"

REGIONAL *(Cont'd from Page 75)*

need for redesign; and the best advertising channels.

Since such a procedure is being used for every product produced in the state of Washington, it is apparent that the survey, originally conceived by the Seattle Advertising and Sales Club in 1943 and since widely subscribed to by various agencies throughout the state, will form a valuable contribution to determining just how great the impact of peace upon the economy of the state will be. It should also form a most worthwhile means of determining how best to modify, and in what direction, the force of that impact in the months and years to come.

Pacific Northwest Product Survey Organization Plan—Sponsors: Seattle Advertising & Sales Club, Howard Barnes, Chmn., Postwar Planning Committee; Association of Washington Industries, Frank Walsh, Chmn., Information & Statistics Committee.

Participating Organizations: Seattle Chamber of Commerce, James E. Louttit, Mgr., Industrial Department; University of Washington, Dr. Nathanael H. Engle, Director, Bureau of Business Research; Purchasing Agents Association of Washington; Committee for Economic Development; Engineering and Technological Societies.

Project Chairman: C. T. Bakeman, Director of Industrial Development for Puget Sound Power & Light Co.

Steering Committee: All individuals named above, plus: Business Engineering Consultant Kenneth E. Fosnes, Kenworth Motor Truck Company; Industrial Consultant Larry Johnson, War Manpower Commission.

Project Headquarters: Association of Washington Industries, Willard S. Parrish, Project Manager.

Operating Committees: Publicity, George Rideout, Chairman; Engineering, L. B. Cooper, Chairman: Merchandising, Fred E. Baker, Chairman; Purchasing, Carol Holloway, Chairman; Advertising and Marketing, J. R. Lunke, Chairman.

Corrosion Rates Of Cast Iron Given

Results of plant and laboratory tests of 300 corrosive media on cast iron are given in a 28-page pamphlet entitled "Cast Iron in the Chemical and Process Industries," a recent publication of the Gray Iron Founders' Society written by F. L. LaQue of International Nickel Company, Inc.

Availability of material, design for chemical industry equipment and many specific applications are included in the pamphlet.

The pamphlet also points out how corrosion resisting characteristics of gray iron may be altered by alloying and by foundry techniques since both affect the size and distribution of the graphite particles and influence the corrodibility of the matrix.

The pamphlet is available at the Society's Cleveland and Washington offices at a cost of $1 per copy.

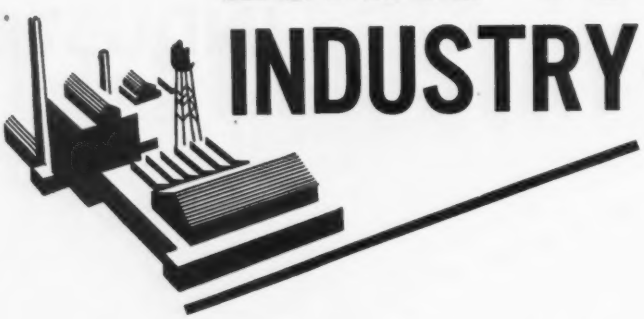
Northern California To Get 176 New Factories

New factories numbering 176 are to be erected in Northern California at a total cost of $26,000,000, and another 153 plants will construct additions at a cost of $8,400,000, according to figures recently released by the San Francisco Chamber of Commerce.

Of the new developments 90 per cent are slated to take place in the San Francisco Bay area. Construction has begun on practically all projects which have received priorities for labor and materials.

• Back in the early days of the war, when Fulton Lewis spent his time picking on the ODT instead of the OPA, he made much noise about a Spokane undertaker who couldn't get a certificate to operate a hearse because there was no back haul. Here is the proof that you can get a back haul with a hearse. It is "The Ghost," otherwise known as the "Spirit Lake Special" which daily carries 13 war workers from Idaho to the Spokane aluminum rolling mill (and back).

LOANS TO INDUSTRY



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REGIONAL REVIEWS
TEHACHEPI TO TIJUANA

NOW that the atomic bomb has blasted the Japanese out of the war, it is time for a quick review of a number of developments of high ranking importance from an industrial standpoint that have taken place in Southern California during the past few weeks.

Before mentioning some of them, however, here as everywhere else in the West the manpower shortage is in the greatest state of flux experienced in probably a generation. Until the situation clarifies itself further that flux will hold.

War workers continue to leave the types of plants that don't offer postwar opportunities, and it is even difficult to get them to take jobs where there is a good reason to believe that there will be postwar employment. Where they go, nobody knows, but the housing shortage is as bad as it ever was.

Aircraft employment is down to a total of 139,000, a big drop from its July 1943 peak of 271,000. Of these, 37 per cent are women, a reduction from the 42 per cent that existed at the peak. Shipyard employment is down to 48,000. Those leaving jobs voluntarily each month have increased to such an extent that there just isn't any problem on layoffs due to cutbacks.

The construction industry, which could be a fine "cushion," is, unfortunately, tangled up on its own feet. Lumber has been short all along, but overseas requirements have been even heavier. Cement demand is very strong. The same is true for every type of building material.

It seems that the relaxing of restrictions encouraged too much activity with the result that less material had to be spread over a greatly increased amount of work. It is estimated that 9,000 homes are partly built but can go no farther. The argument is that the material that they could use is going into the more extensive improvements on property permitted under the amended regulations. There is also a considerable amount of industrial building.

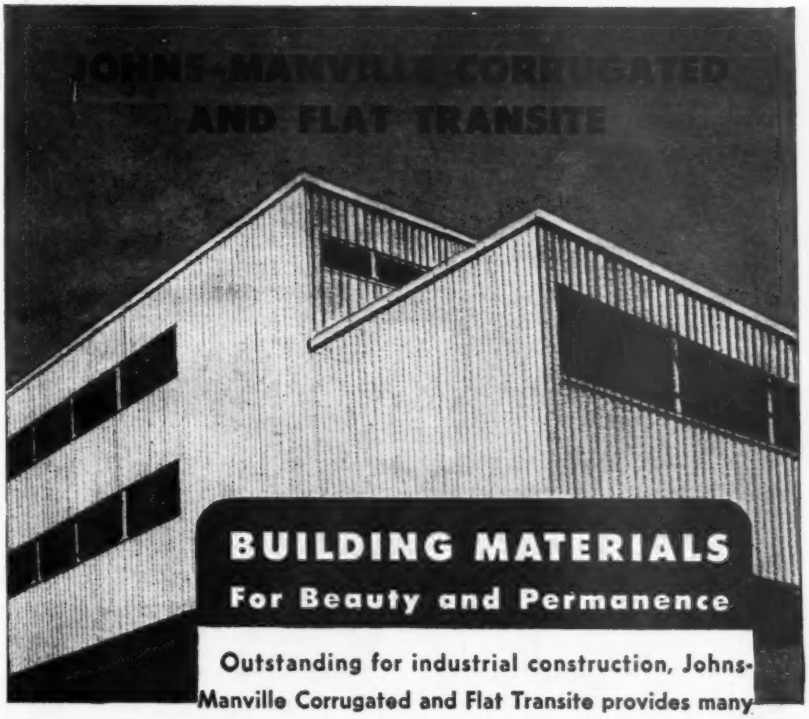
This boils down to the fact that if material is not made available immediately, work can't be started on a big scale. A favorable factor, however, is that the big subdividers are getting their plans well worked out. Seventy-five subdivision maps have been filed in the past few months, and many have received approval. A total of 128 have been approved since July 1942.

Macy's Store

Improvement of existing industrial buildings . . . of all types . . . and the erection of new ones is expected to be extensive. Macy's has been reported again, and again, and again as being ready to build. Rumors have it that other national department store firms are buying property for the erection of postwar stores.

Reconversion is getting tangled up in its own ambitious programs, just as building is. However, the "go signal" on private initiative will definitely move many programs along faster than they would have moved otherwise. Every source of supply is being investigated, and some material that wouldn't be used, such as scrap aluminum, is finding a market. It certainly isn't an easy situation, but the outlook for the final quarter of the year holds real encouragement.

Fortunately, Southern California has many industries that didn't convert to go to war and so have no reconversion problem. These include agriculture, food processing, the beverage industry, tobacco products industry, chemical and allied, petroleum production and refining, rubber products, mining, fishing, many manufacturers of industrial equipment, printing industry, apparel industry, building material industry, and all of the retail and service trades. Ship construction and re-



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pair is reducing to almost its postwar level if ship repair is carried on at the high rate indicated for the end of the war. The airplane companies are busy getting their postwar lineups, but they are going to be dependent on the attitude of Congress toward the aviation industry to a considerable degree. The right attitude on the part of Congress toward the aviation industry will mean a great deal in its immediate situation and in developing the future of aviation.

That just about gives the picture as it is today. Jammed up in many instances, but still moving along. If the promises on more material in the final quarter can definitely be fulfilled, it looks as if there are plenty of cushions.

Industry by Industry

Automobile industry—Kaiser's Graham-Paige deal rated headlines everywhere. Joseph W. Frazer had already indicated a western assembly plant with Southern California as a logical location, but the Kaiser news could mean a lot to the vast number of sub-contractors who have been busy on airplane and shipbuilding contracts.

It also clears up the Kaiser-Henry Ford rumor under which Henry Ford had purchased from 400 to 700 acres of land near the Fontana steel plant.

General Motors has purchased 125 acres north of Van Nuys for an extensive assembly plant to supplement the company's present Southgate plant. This present plant will be doubled in size, indicating that big plans are in the offing by GMC. This is good news, because many local firms worked with General Motors as sub-contractors on a tank contract.

Henry Ford is still reported as talking about expansion, and Southern California is hopeful on this score.

Inasmuch as Southern California is now second only to Detroit, the plans announced thus far indicate that it will maintain its position.

Shipping — Matson announces a fast Hawaiian Island service, and expects to spend $20,000,000.

The Navy is expanding its operation in the Terminal Island area and despite war's end will probably continue to do so. In addition to its repair facilities, it will have almost a complete set-up on a permanent basis. This will be a nice "cushion" for Long Beach.

Aviation—Expanded air service for the West Coast has been recommended by the Civil Aeronautics Board. The recommendations for Western Air Lines include Santa Ana, Pomona-Ontario, and Oceanside as intermediate points between Los Angeles and San Diego. United would include Taft, Wasco-Delano, Porterville, and Madera as intermediate points between Los Angeles and San Francisco. The inclusion of these intermediate points shows a developing picture on air transportation.

W. A. Patterson of United announces that his company will spend $53,000,000 on planes and facilities. A substantial part of this will go to Douglas for planes.

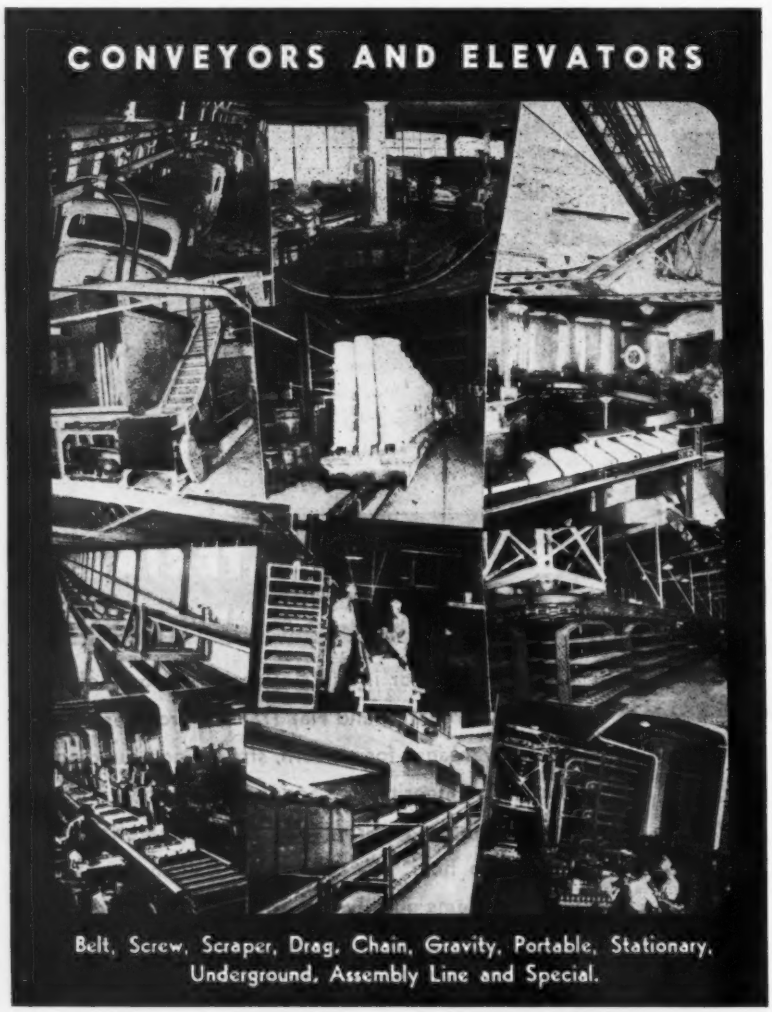
Synthetic rubber—U. S. Rubber Company authorized to build a new latex (liquid rubber) production unit in the Los Angeles Synthetic Rubber Project. Shell Oil Company given permission to build a $2,078,500 isoprene unit. Goodyear given permit to install $42,470 of additional equipment.

Effect of Rubber

Significance of all this is that Southern California is moving to a low cost production basis on synthetic rubber, and that is an important matter as far as postwar operation is concerned. It is also of interest that this is the only place in the world where production of rubber and facilities for manufacturing rubber products are so closely integrated.

Television — Don Lee Television and Broadcasting Company has applied for permission to build a high-powered television station atop Mt. Wilson.

Cotton textile mill—Cotton growing, cotton textile manufacturing, and cotton goods manufacturing may be combined in the West if discussions of a $2,500,000 mill to process California cotton are carried out.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Pacific Research Foundation — Private industry supposed to be ready to finance $5,000,000 research foundation.

Higgins Won't Show

Andrew J. Higgins—Plans announced thorugh western associates, Wade E. Miller and Charles E. Dayton, to build a plant in Santa Ana to produce boats . . . pleasure and commercial . . . on a large scale basis. Indications are that other articles will be turned out. Revealed that Higgins isn't "coming to the coast." He has been here . . . owning a marine radio-telephone plant in Santa Monica, which will be expanded in postwar period.

General — Byron Jackson, Lockheed, Tivit Products Company, Economy Blueprint and Supply, Diamond Truck Company, American Smelting and Refining, and Consolidated Steel all have building programs that they will undertake soon. Andrew Jergens is acquiring 40 acres in Van Nuys for a new plant.

Little by little, things are assuming definite shape. The future of the West is being written by the events that are happening from day to day. The past month put some interesting developments in the positive column. Each month remaining during 1945 will fill in other parts of the postwar picture, and eliminate some of the things that have been rumored.

Acquisition of western plants by eastern firms seemed to be developing into "a trend" a few months ago. It has slowed down. Harvill Corporation of Los Angeles did a "man bites dog" when it acquired a plant in Fall River, Massachusetts. Other western firms are talking with eastern firms on manufacturing their products in the East and marketing them. It's too early to talk of "a trend" in this regard, but it is interesting to note that this type of discussion is going on.

Surplus Aircraft Stocks May Be Peril

Stocks of surplus airplanes and equipment must not be allowed to prevent the construction of new types and the carrying out of constant experimentation, Lt. Gen. Hoyt S. Vandenberg stated in a recent Air Force Day speech in Los Angeles.

Citing the experience in the years following the first World War, the general said that until 1932 the aircraft industry was kept at a virtual standstill because of the large stocks of leftover engines, such as 3,000 Liberty motors, kept on hand.

As evidence of how rapidly the development which the general wishes to continue in peacetime is now going on, he stated that both the B-29 and the B-32 will be outmoded in a very few months.

Leadmen's Classes Used At Ryans

An estimated 1818 manhours per week are being saved by workers of the Ryan Aeronautical Company at San Diego as a result of the training being given them by graduates of the company's special leadmen training class.

Things the leadmen are taught include: how to give a new employee the right start; how to teach a worker a new job; how to keep people occupied, as well as job simplification, quality control, tool control and other subjects related to speeding up production.

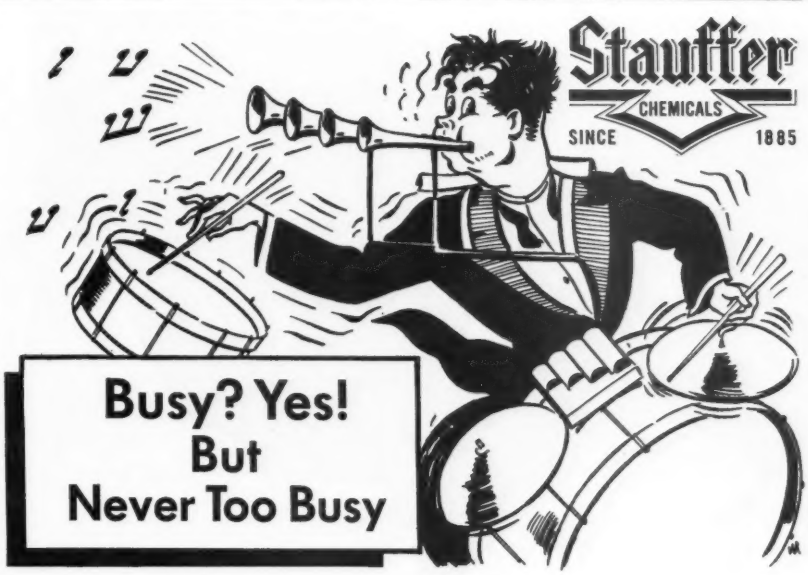
Oil Pool Increases

Ceiling price increases on oil produced in one California pool and three New Mexico pools have been allowed to producers by the OPA under the Stripper Well Premium Payment Plan. The pools affected and the increases allowed are: California, Olinda (Upper B) Brea Olinda, 35 cents; New Mexico, Benson, five cents; Halfway, 35 cents; Maljamar North, 35 cents.

California To End Blighted Areas

Legal machinery by which municipal governments in California can assemble property in "blighted areas" for their redevelopment for commercial or industrial use as well as for improvement as residential areas, has been set up through the signing of the "Urban Redevelopment Bill" by Governor Earl Warren.

The bill enables the planning commissions of communities throughout the state to set up master plans for "blighted areas."



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CHEMICALS FOR INDUSTRY AND AGRICULTURE

REGIONAL REVIEWS
COLUMBIA EMPIRE

The Columbia basin, with an armload of world's records in ship and other war production safely tucked away, is beginning to take for granted that tens of thousands of war workers will be looking for new jobs in not too many months.

The fact is rapidly being accepted as an everyday bit of living and is losing even its interest as a conversation topic except to spur postwar employment plans which to date could take only a small percentage of those presently employed.

War industries remain on a hiring basis, largely due to ship repair demands. In fact, Western WPB officials at Portland made haste to counteract affects of the Washington WPB announcement in July that $3½ billion in war contracts have been lopped off the schedule and 168,000 war workers will be out of a job in the nation by the year's end as a result.

In Oregon it was declared that the cut was relatively minor and the Columbia empire was merely moving displaced workers into other war jobs with all major plants still on a hiring basis, including the shipyards. More war workers have gone home to the farm and service station than the total displacement because of contract terminations. At Vancouver, shipyard men expect to work well into 1946 unless the war's end comes unexpectedly. If it does, great confusion will result.

Atomic Bomb Plant

What will atomic power do to the government's huge Northwest power investments at Grand Coulee and Bonneville? Administrator Paul Raver isn't worrying.

He points out that it takes huge quantities of power to smash the atom in the first place and electricity will continue to be a major power source for years to come.

The idea was carried through by Bonnell W. Clark, vice president in charge of sales for Westinghouse Electric Corporation. During his just-concluded Portland visit, he pointed out that the vast power resources of the Bonneville-Coulee system made atom-smashing in the Northwest possible.

The huge source of cheap power will make the Northwest a pilot plant for the world after the war. It is in this territory that pioneering will be done in furthering use of electrical power for home heating, electrical appliances and development of new and unheard-of contrivances that will become commonplace in the coming few years.

Westinghouse now has an investment exceeding $1,200,000 in the Portland area and plans great increases, Clark says. Some of the company's California facilities may be moved into the Bonneville-Coulee area to take advantage of the cheap power.

In this was a hint of other things that leaders of the Columbia river forecast will be happening in an industrial way.

Big Things

Another national figure picks the same subject for an opinion. Maj. Gen. Thomas M. Robins, deputy chief of army engineers on a routine inspection along the Pacific Coast, said in Portland that "The Northwest is headed for big things—but they won't come all in a minute after the war ends."

He pointed mainly to natural resources, placing emphasis on development that will come from construction of the Willamette valley project—a string of dams, the Umatilla dam and four or five dams along the Snake river, all of which were interrupted by the war.

Too much, probably, of postwar planning never reaches the outer door beyond the council chambers, but action of the Portland dock commission in purchasing an additional 625 feet of Willamette river

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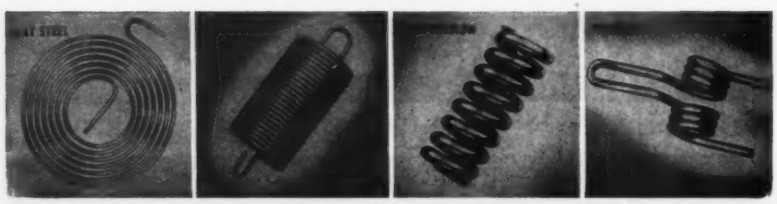

frontage for postwar dock use has encouraged many disbelievers.

The commission has a $3 million fund for improvements, and has placed $300,000 of it in the expansion. Property was purchased from the Eastern & Western Lumber Company.

Postwar planners, now that Japan is being consigned to a peaceful future; are tying their ideas very closely to port development and shipping to the Orient. Shipping faciliteis and industrial activities must go hand in hand.

Huge Fires

In the air but not yet with a foot on solid ground are plans to do something about the great waste of Tillamook county that is the 300,000 acres of once-green forests that have been swept by fire at six-year intervals since 1933. The current blaze is progressing across the old burn after more than a month of conflagration that cost four lives in the first four weeks, destroyed millions of young trees and laid waste new virgin lands bordering the old burned area.

The lumber industry lost timber by the billions of board feet in the original fire, is losing reforestation at the average rate of $4 per acre per year by recurring fires.

Clearing the millions of dead snags left by reburns in that vast area will be a collosal job, requiring funds estimated as high as $20 million. Whether it would be state, industry or, more likely, federal, or a combination of all three, is still something to be decided.

In any event, the rugged mountains are suited only to growing trees, the lumber industry is nearing the end of its virgin timber on private lands and is going into the tree farming business to raise its own trees for the future on a large scale. Some experts in the forestry field now give the reforestation idea a chance for success. There are many cold water throwers but determination is being shown on new fronts to push the idea as the current fire burns on through more territory until halted by fall rains.

Raw Materials Don't Make Income

"Of the 48 states, 13 devoted *less* than the national average of their working time in 1940 to the production of raw materials and had *income* greater than the national average," said Dr. Wilson Compton, president of Washington State College, at the recent Light Metals Conference in Seattle. Twelve of those states were east of the Mississippi and north of the Ohio. The thirteenth was California.

"Two states expended *more* than the national average of working time on the production of raw materials and had *more* than the national average of income. Those were Nevada and Wyoming.

"On the other hand, 3 states spent *less* than the average of working time on raw materials production but had *less* than the average of income. One was Indiana; the other 2 were New Hampshire and Maine where diligent men are still trying to separate unwilling crops from reluctant hillsides.

"The remaining 30 states all gave *more* than the national average of their working time to producing raw materials and all received income *less* than the national average. All 30 were west of the Mississippi or south of the Ohio, including 7 of the 11 states of this Council; and in terms of average income, out of the 20 lowest, 14 were in the South, 6 in the West.

"Even that is not the whole comparison. The 3 states with the lowest income used two-thirds of their working time on producing raw materials. The 3 states with the highest income used less than 10 per cent."

Northwest Coal Producers Get Price Increase

Increases in producers' ceiling prices for bituminous coal amounting to 20 cents a ton have been granted throughout Washington, Oregon and Alaska by the OPA.

The 20 cent increase is the highest of those allowed by the OPA in 13 of the country's 22 districts. Average increases for the affected districts came to only 3.47 cents per ton.

Purpose of the increases, which are supplemental to those granted in May, is to compensate producers for the wage increases given to miners.

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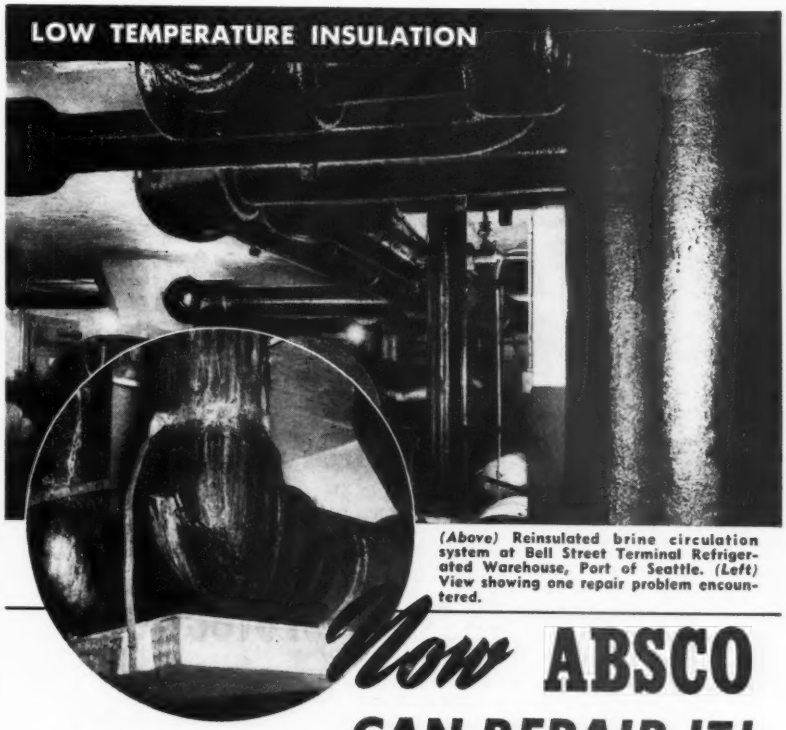

(Above) Reinsulated brine circulation system at Bell Street Terminal Refrigerated Warehouse, Port of Seattle. *(Left)* View showing one repair problem encountered.

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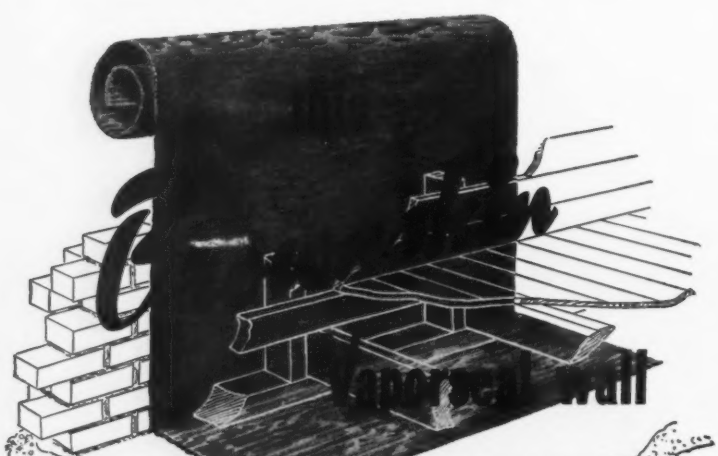
REGIONAL REVIEWS

THE WASATCH FRONT

HENRY J. KAISER'S proposal to merge California, Utah and Colorado steel plants into a western combine under western control and management met with a mixed reaction in Utah. The plan had a popular public appeal, but individuals and groups with a direct financial interest in the postwar operation of the plant were not overly enthusiastic. They were inclined to favor a continuing operation, if possible, under United States Steel Corp. ownership or lease rather than take a chance on a plan that might require many months for completing consolidations and arranging financing.

The Kaiser announcement, plus statements of surplus property board members in San Francisco and Washington did, however, convince many U. S. Steel partisans in and outside the plant that the corporation was not likely to be the successful bidder. The double play of Heller to Kaiser to DPC was too smooth and well timed not to have significance.



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This served to cushion the shock of U. S. Steel's announcement that it had decided to take no further steps toward acquisition of Geneva either on a purchase or lease basis. But in spite of the forewarning, the corporation's decision created considerable disappointment here. It served to aggravate the uncertainty that has been hanging over the plant ever since the population of this area began thinking in terms of postwar industry.

Withdrawal of U. S. Steel from the picture did focus attention on Colorado Fuel and Iron Corporation's offer to DPC for a lease. This was made before the Kaiser plan was publicly launched and would be subject to substantial revisions should the large western merger he proposed be consummated. The consolidation of C. F. & I. and Wickwire-Spencer is in process but the merger with the Kaiser interests, according to C. F. & I. officials, is still in the conversational stage.

C. F. & I. Plan

The C. F. & I. plan calls for a government-financed conversion program which would require something more than a year to complete and cost in excess of $70,000,000. Between $15,000,000 and $20,000,000 could be deducted from that figure if it was decided to sell hot rolled coils to U. S. Steel's contemplated Pittsburg, Calif. instead of installing cold reduction facilities at Geneva. This possibility was raised by Benjamin F. Fairless' statement that U. S. Steel would be glad to negotiate for the purchase of hot rolled coils from the postwar Geneva operator, whoever it might be.

The immediate problem, from a local standpoint, is to keep Geneva operating until some disposition is made of the plant for postwar use. Orders on hand will keep it operating at the current rate into October and there are prospects of obtaining additional orders. There is also the danger that orders now on hand will be cancelled. And the uncertainty of the postwar picture is making it increasingly difficult to hold the operating organization together.

Western congressional delegations are prodding governmental agencies to dig up new business for the plant, and the transportation situation—a heavy movement westward and a lighter movement eastward—raises the possibility that some orders might be found east of here. Movement of Geneva-produced steel eastward would not be economically sound from a dollar and cents standpoint but it might be justified from the standpoint of physical transportation.

Alumina Plant

The alumina plant in Salt Lake City, owned by DPC and operated by Kalunite, Inc., a subsidiary of Olin Corporation, has been given a 90-day lease on life after a flood of reports from Washington, D.C., that it was going to be closed down. The company has been instructed to continue

operations for another three months, after which the plant's status will again be reviewed.

The plant, designed to produce alumina from alunite (mined at Marysvale in southern Utah) has supplied some alumina to aluminum pot lines. But it has never come close to anticipated capacity. The process was worked out here in a batch type pilot plant. But when the transition to "flow" production in a commercial plant was attempted numerous difficulties developed, reportedly because of unsuitable equipment.

Labor Tight

The labor situation is still tight in the area, despite the psychological relaxation as the tempo of the one-front war is stepped up. During the past three months only 322 applications for unemployment insurance have been made in the entire state. Serious appeals and cheesecake are being used to lure workers to the hard-pressed railroads, But the results have been disappointing. The War Manpower Commission has to exercise some caution in trying to staff the railroads lest they disrupt nonferrous metal and coal mining, both of which industries are short-handed.

Payroll Tax

Utah's state tax study committee, set up by the last legislature to make a comprehensive survey of the tax system and recommend changes to the next session, is disposed to "pioneer" a movement to level off unemployment insurance reserves. Utah's reserve is now in excess of $25,000,000 and climbing rapidly. The committee has asked the state security division to study the advisability of leveling the fund off by reducing the three per cent employer tax on payrolls which supports it. Utah is one of the five states which does not use the experience rating method in collecting the tax.

Attention is also being given to the possibility of using some of the fund to create postwar employment on the theory that it would be better from every standpoint to distribute it for work than for idleness.

Black Hills Gold

Revival of gold mining in the Black Hills of South Dakota, location of the world-famous Homestake gold mine, is responsible for an order extending the jurisdiction of the Nonferrous Metals Commission to take in the Black Hills region. The area formerly was in the jurisdiction of the 6th regional war labor board at Chicago, which relinquished its control over the counties of Lawrence, Custer, Pennington, Mead and Fall River, South Dakota. Jurisdiction of the Nonferrous Metals Commission covers the states of Colorado, Wyoming, New Mexico, Utah, Idaho, Montana, Nevada, Arizona, Washington, Oregon and California.

Small Employer Wage Change Ordered

"Inflation wages" will get even small employers into trouble, the 9th War Labor Board pointed out when it withdrew the exemption from wage stabilization regulations previously enjoyed by the small employers in the oil well servicing industry in Lea County, New Mexico.

A clear showing was made that inflationary wages were being paid by employers of less than nine in the instance mentioned, according to J. Glenn Donaldson of Denver, Chairman of the 9th regional board. Although no penalties were invoked, the decision provided that "hereafter an employer in the oil servicing industry in Lea County must obtain Board approval before he puts any wage adjustment into effect."

Alcoa's Ore Search

Aluminum Company of America's search for new bauxite ore in Oregon, as reported in the August issue of *Western Industry*, is in Washington County, near Hillsboro. Options have been taken on mining properties, and leases on others, and core drilling indicates the presence of enough ferruginous bauxite to justify working this low grade ore provided a new process can be developed for refining it. Research work to discover a feasible process is under way in the east by Alcoa.

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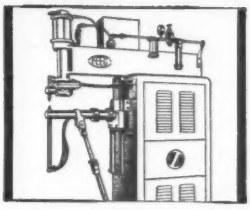

Air Operated Press Type Spot Welder

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REGIONAL REVIEWS

CONTINENTAL DIVIDE

BASKING in the nation's spotlight as the best bet for sustained oil production in the years ahead, the Rocky Mountain region has had a dizzy year. Statistics for the first half of 1945 show the region up and down the Continental Divide has registered by far the greatest percentage of increase in crude oil runs to refineries, compared with the first half of 1944.

But what is causing most of the excitement in Colorado, Wyoming, and adjacent areas is the search for new oil pools. And the big oil companies are 'way out ahead, waging a battle of the giants for tomorrow's crucial oil reserves.

Wyoming has 57 geophysical crews poking and scratching and peering at hillsides in the intensified search for new oil fields. Utah has 18 such crews. About half of the geophysical outfits are seismograph crews. The new year will see more than $4,000,000 spent in the Rocky Mountain region on such super-sleuthing with scientific doodle-bugs. Incidentally, oil men don't laugh like they used to when somebody offers to find oil with a doodle-bug. It might work. And the old-timers who used to spot oil pools by squinting at the outcrops and running imaginary lines along surface contours—they aren't considered daft any more, either. Surface geology is doing a man's-size share of the discovery work in today's oil industry.

Rio Blanco Booms

Greatest focal point of interest in the Western oil industry just now is Colorado's Rangely field, in Rio Blanco County near the Utah line. Here half a dozen of the nation's oil companies have a working agreement for development of the field's deeper producing horizons. The California Company, the Texas Company, Continental Oil Company, Stanolind Oil & Gas Company, Newton Oil Company, and Wasatch Oil Company are drilling at Rangely. Utah Refining Company, headed by T. A. Dines of Denver and closely affiliated with the Standard of Indiana group, is building a pipeline that will give the field its first outlet to a refinery. The Utah company has a refinery at Salt Lake City, and the oil from Rangely and the nearby Wilson Creek fields may go there or may be diverted eastward in Stanolind's big pipeline that terminates in the Chicago refinery area.

A year ago eyes were focused on the great Elk Basin oil field on the Wyoming-Montana border just east of Yellowstone National Park. Now the center of interest is Colorado, with Rangely field and the other "Western Slope" operations barely keeping the spotlight from such rivals as Baca County in the state's southeastern corner and Weld County in the famous "sugar bowl" a few miles north of Denver.

Utah Oil

Utah has come in for its share of the excitement during the past few weeks, since the Carter Oil people, part of the Standard of New Jersey family, reported that they found the Uinta Basin around Vernal, Utah, almost identical with the great oil producing region in Venezuela. Utah shares with her neighbor, Colorado, most of the shale oil deposits of the world, which geologists consider America's next big source of oil when the wells begin to play out.

And after that will come the extraction of oil from the great lignite coal beds, which also happen to be located in the Rocky Mountain region.

Cheyenne Modification Center

You can buy some nice B-29 modification centers cheap if you are in the market. Cheyenne has one that is up for sale. The city is likely to buy it from the government, then turn around and lease it to United Airlines, which has operated the modification center and which has greatly ex-

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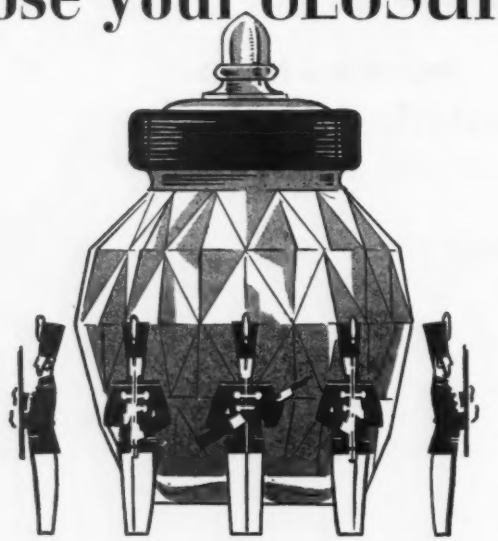

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panded its air transport business at Cheyenne.

The ultra-modern Denver Modification Center, operated by Continental Air Lines, will wind up its modification work within a few weeks and probably will be sold as surplus. Continental, United, and the City of Denver are possible buyers, as is Western Air Lines, if it ever manages to get over the hump and start its long-awaited freight and passenger service between Los Angeles and Denver.

One of Colorado's world-famous prewar industries was a glass eye factory. Now Denver is bragging about its fish-hook manufacturing industry, and the part it has played in winning the war.

Stanley Wright and A. D. McGill established the firm of Wright & McGill 30 years ago to turn out trout flies, thinking it would be good clean fun and a chance to cash in on the West's great reputation as a fisherman's paradise. But since the war they have been turning out great ugly-looking hooks for lend-lease to countries that needed more fish for hungry people. Not to mention millions of hooks for life-saving kits used by the army, navy and merchant marine. But all that business will be tapering off now, and Wright & McGill and the dozens of girls they employ can get back to the more artistic business of tying fancy trout flies with all the colorful plumes, feathers and beautiful silks that sporting fish love best.

Field's Research Center

Sixty out of every hundred Americans favor a tax-supported public works program after the war to help solve employment problems, but such a plan is opposed by all but 41 per cent of the Republicans. Such is the finding of the National Opinion Research Center located at the University of Denver and financed by Marshall Field. The latest in a series of nation-wide surveys showed that almost half of those opposed to a public works program have no idea what should be done to alleviate postwar unemployment. Of the prosperous, 45 per cent, and 69 per cent of the poor favor such a program. 70 per cent of the country's Democrats favor it, but only 41 per cent of the Republicans.

What the Rocky Mountain region needs, according to the never-bashful *Denver Post*, is something like the Midwest Research Institute recently formed by forward-looking businessmen in Kansas, Oklahoma, Arkansas, Nebraska, Iowa and Missouri. The Institute will seek to develop new uses and wider markets for Midwest products, taking its cue from the Kansas Industrial Development Commission's invitation: "Kansas opens the door to corporation activities."

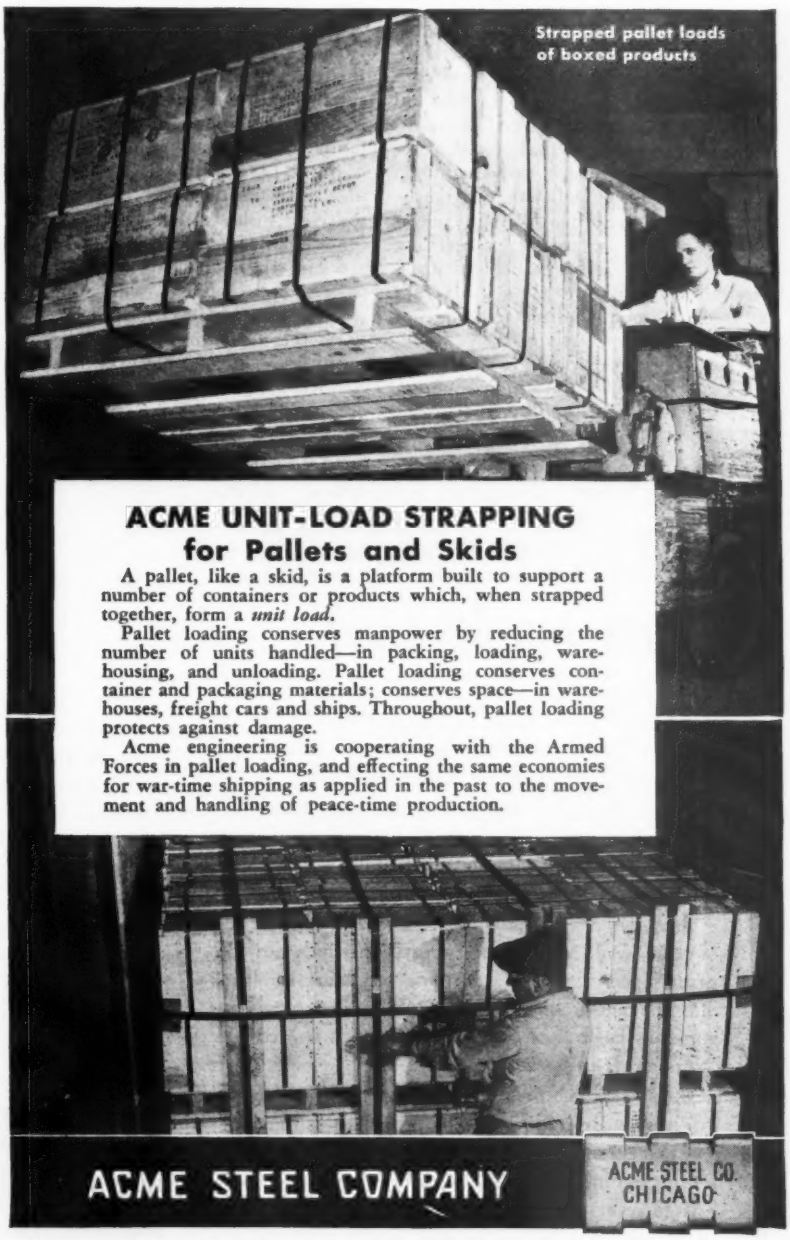
What sense is there in shipping Wyoming wool to the Eastern Seaboard to have it made into clothes and then shipping the clothes all the way back west again? Wartime developments have made wool manufacturing a profitable as well as practical industry in Colorado. Plenty of raw materials are at hand and a superior labor supply is available, but lack of backing from the region's bankers and financiers is hindering such developments, according to the *Denver Post*.

All Set for Future

Manufacturer Carl A. Norgren, a tall, neatly groomed man who wears his glasses on a black silk ribbon and always looks as if he had just come from a meeting with the board of directors of some international corporation, isn't worrying about reconversion.

All during the war his Denver factory has been turning out the same kind of lubricators, blow guns, air regulators and reducing valves that it manufactured for a world-wide market before the war. And Carl Norgren will go right on turning them out, keeping most of the 150 skilled machinists and other employees he has now.

"You don't have to sell in Denver or Colorado to manufacture successfully here," Mr. Norgren points out. "More than 95 per cent of our market is outside the Denver area.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LABOR
AND THE INDUSTRIAL WEST

WITH Industry members strongly dissenting, the Public-Labor majority of the Tenth Regional National War Labor Board, disregarded recent findings of the National Board which reduced premium amounts payable for second and third shift work.

Specifically the majority said that the National Board's action in the Lever Brothers case, in which it cut an award of 5 cents for second shift work to 4 cents, and an award of 10 cents for third shift to 6 cents, "may be interpreted as precedent for the view that the Board has determined to impose a general policy of discrimination against night shift workers in continuous operations regardless of existing practices." The Public-Labor majority opinion then went on to say that it would continue to use the stabilized area limits of 5 cents; and 10 cents in fixing the premium wage rates of workers on night shifts until the National Board "by written opinion and in unmistakable language advises that such an arbitrary and inflexible policy of discrimination has been adopted for the country as a whole."

Stating that the Public-Labor majority "has left the trail of National Board policy as prescribed and blazed a trail of its own," the Industry members announced in a minority opinion that the Board's action violates specific instructions of the National Board regarding distinctions between non-rotating shifts in non-continuous operations, and continuous operations and rotating shifts in non-continuous operations.

In the Lever Brothers case, the Industry members said, the National Board's opinion clearly shows that the 4-cent and 6-cent amounts should not be exceeded unless larger amounts are shown to be the practice in companies with similar continuous process operations in the area.

As the dissenting opinion of Industry members points out, however, in six cases, decided on June 14, the Regional Board ordered the payment of 5-cent and 10-cent differentials, though in none of the industries involved had it been the practice to make such payments.

In another night shift differential case, that of the California Wire Cloth Corporation, the Industry members issued a dissenting opinion on July 31. They objected to the direction of night shift premium payments of 10 per cent on the second shift and 15 per cent on the third, plus the further stipulation that the payments be made retroactive to a date more than eleven months prior to the time when the United Steel-workers Union first proposed the payment of such premiums.

In the panel report, the dissent charged, no discussion was made of the facts upon which the opinions were rendered. Furthermore, no findings were made as to the practice in specific plants having operations similar to that of the corporation.

Quoting instructions contained in Field Memo No. 117, issued May 11, 1945, to the effect that "granting or withholding of shift premium pay in a particular case depends on the written findings of fact of the Board or Board agency," the minority opinion said "the Tenth Board has again exceeded its authority in ordering night shift premiums in violation of the instructions of Field Memorandum 117, the directives upon which it was based, and in making the order effective 11 months before the time the union first proposed these adjustments."

Are your supervisors the ACCEPTED LEADERS of your employees?

Workers do not consider that management acts in the employee's own self-interest, according to studies made by "Factory and Industrial Management."

How can management win back its position of accepted leadership, necessary to lowered production costs, better quality of output and happier working conditions?

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West Has Lowest Basic Wage Increase

Lowest average basic wage rate increases in the entire nation from April, 1943, to April, 1945, took place in the major cities of the Pacific Coast, according to U. S. Department of Labor statistics.

Portland led the nation in having the lowest basic wage increase, 1.4 per cent, as applied to both manufacturing and non-manufacturing industries; San Francisco was second lowest with 2.1 per cent, and Seattle ranked fourth lowest with a 4 per cent increase.

Los Angeles, however, stood twentieth with an increase of 10.9 per cent.

In the non-manufacturing field Seattle stood lowest in the nation, 6 per cent, and San Francisco next lowest with an increase of 7.3 per cent. Portland and Los Angeles, sixth and eighth places, respectively, had 10.1 and 12.3 rises. The national average increase during the two year period, however, was 17.9 per cent.

Even more extraordinary was the way in which the West lagged behind the rest of the country in increases in manufacturing wages for the six months ending last April. During that period Denver had a 2.1 per cent decline; San Francisco had no rise and in Portland and Seattle wages increased 2/10 and 3/10 per cent, respectively.

In the same six months figures for non-manufacturing showed that while San Francisco wage rates declined 2 per cent and Portland 1 per cent, wages in this category rose 4/10 per cent in Seattle and jumped 2.5 per cent in Los Angeles.

FEPC Leaves Only Two Men On Coast

Only two men are left in the organization of the Committee on Fair Employment Practice on the West Coast as a result of the scaling down of the committee's personnel throughout the country from a total of 117 workers to 51.

The move, accompanied by a reduction of the number of field offices in the nation from 15 to ten, resulted from an appropriation by Congress of $250,000 for the committee's budget as against the $507,600 appropriated last year.

The two men left on the West Coast to handle the West's share of the 2,600 cases pending before the committee are: Edward Rutledge in San Francisco and Robert E. Brown, Jr., in Los Angeles. Harry Kingman, heretofore in charge of the coast work, has been on leave from the University of California YMCA, where he was general secretary, and will return to his old position.

Plastic Eye Demand Sets New Precedent

The demand of a gardener for a plastic eye rather than one of the traditional glass is expected to assure victims of industrial accidents who require artificial limbs of getting the latest improvements resulting from Army and Navy studies in connection with the rehabilitation of war amputees.

On the gardener's insistence, the California Industrial Accident Commission ordered the insurance carrier to comply with the demand for a plastic eye. The commission's order stated that an injured employee is entitled to the best type of artificial member reasonably available to him.

No Vacation Ladder

Prorated increases in vacations between the 1-year and 5-year periods are a liberalization not contemplated in the national policy on vacations, and are contrary to the wage stabilization policy, the National War Labor Board has ruled in the case of the Zephyr Manufacturing Co., of Los Angeles, reversing the action of the 10th regional Board at San Francisco. The latter had approved a schedule of 1¼ weeks after 2 years, 1½ weeks after 3 years, and 1¾ after 4.

National Board OKehs Rate Ranges

There is nothing in the War Labor Board Act to prevent the establishment of rate ranges, the National War Labor Board declared in reversing the policy that the Regional Board at San Francisco has followed for the last year. The case was that of the Rheem Research Products Co., of Los Angeles.

A year ago the Regional Board adopted a resolution that no rate ranges be allowed unless they were already legally established or were clearly the established practice in

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the industry. As a result, employers have been granted only single rates, until finally an appeal was taken in the Rheem case.

Following the Rheem decision, the National Board reversed the Regional Board in the case of the San Mateo branch of the City of Paris Drygoods Co., with instructions to the Regional Board to follow the ruling given in the Rheem case.

WLB Rules on Wage Retroactivity Limits

Limits of wage retroactivity and the subject of reopening wage negotiations, in the event of modification of the Little Steel Formula or a reduction of hours from the 48 per week level, have been stipulated by the Tenth Regional War Labor Board in the insertion of two clauses in an agreement between Los Angeles lumber companies and an A. F. of L. union.

One clause states that retroactivity is not to go farther back than the date of an order effecting a change in the Little Steel formula. The other calls for retroactivity back to the date of the written notice by the union following a change in the wage stabilization policy permitting wage compensation for reduced hours.

Fabricated Structural Steel Safety Drive Set

With an average of one worker out of twelve injured each year—a rate about equal to if not higher than that of the casualty rate of the armed forces—the U. S. Department of Labor is now conducting a campaign in the fabricated structural steel industry, purpose of which is to organize for safety.

The industry, though comparatively small with about 100,000 workers in some 1,100 plants throughout the country, has heavy concentrations of workers in the Pacific Coast states as well as in the heavily industrialized sections of the East.

Annual Mining Wages

The 9th Regional War Labor Board has forwarded to President Harry H. Truman a resolution urging that the nonferrous metals industry be included in the President's study of guaranteed annual wage plans. The board recently has denied several requests for a guaranteed annual wage, the latest being the case of the International Smelting and Refining Company and the Inspiration Consolidated Copper Company, both of Inspiration, Arizona. The guaranteed annual wage was one of the requests of the International Union of Mine, Mill, & Smelter Works (CIO).

Basic Difficulty

The basic problem in railroad transportation right now is shortage of switchmen, said President F. G. Gurley of the Santa Fe at the last meeting of the Pacific Coast Transportation Advisory Board in Los Angeles. Next in order is shortage of mechanics.

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Bargaining to Settle Women's Wage Rates

Union demands for elimination of differentials between the wages paid men and women were shelved and the issue sent back to the parties for further negotiations in a case involving the Electro Metallurgical Company of Spokane, Wash. The CIO union of Mine, Mill & Smelter Workers is the union in the case.

The company contended that production by women is generally 10 percent less than that by men for the same jobs, and pointed out that the state of Washington compels rest periods of 15 to 30 minutes for women after two hours work, which are not given men. Board chairman J. Glenn Donaldson of the Nonferrous Metals Commission agreed that there is merit to the idea of equal pay for equal work, but that reasonable differentials are permitted when an analysis of the job content reveals a difference between the job duties of men and women. The issue now may be settled by collective bargaining.

Unions May Reject Bargaining Agreements

Though a collective bargaining agreement may have been signed by the president of a union's international and an employer, the bargain may still be rejected by the union, according to a decision recently issued by the Tenth Regional War Labor Board.

According to the decision issued in settlement of a dispute between Hollywood motion picture producers and a cameramen's union, the membership of a union may reject the agreement signed by its international president and the employer when, prior to the opening of negotiations, it had voted to make the agreement resulting from collective bargaining subject to its approval.

• To stimulate workers to greater effort, Anaconda Copper's labor-management committee inserted the above cartoon in the pay envelopes going to the miners each week.

Wage Increase Ordered

In a case declared "rare and unusual" the 9th Regional War Labor Board allowed the Griffin Wheel Company of Denver to raise wages by four cents an hour for more than 100 employees. Production of iron car wheels for all types of freight equipment has been averaging only 84 percent of the firm's maximum output, and the board members who visited the plant found that the work performed there is "arduous and extremely disagreeable because of the heat, fumes and heavy lifting." USES reported that applicants refused to take jobs offered. The wage adjustment increases common labor from 66 cents an hour to 70 cents an hour.

For Post War Industrial Feeding

With reconversion, more and more interest is being manifested by industrial plants in AerVoiD Vacuum Insulated Carriers as a means of providing in-plant hot meals for their workers but on a scale requiring less investment than many of the elaborate war feeding setups.

With AerVoiD Vacuum Insulated Hot Food Carriers a setup can be planned to fit just about every industrial feeding requirement . . . from mid-shift hot coffee or hot soup to a complete, adequate hot meal for a worker.

Experienced industrial food consultants will aid you with suggestions without cost or obligation.

Write for literature showing the multiple uses of AerVoiDs in factory feeding. Ask for Industrial Feeding Envelope 4 M 5.

Mid-Shift HOT COFFEE *for* YOUR WORKERS

35,000,000 cups of coffee consumed by industrial workers weekly emphasizes the preference of industrial workers for hot coffee as a mid-shift refresher.

With AerVoiD Vacuum Insulated Hot Coffee Carriers, hot coffee can be prepared hours in advance of serving, either in the plant or brought in from outside the plant, and serviced directly from AerVoiD Carriers to workers near their work.

Thousands of AerVoiD Carriers are in service providing this welcome and appreciated refresher to factory workers.

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As result of an injury that could have been avoided through the use of a coupler used as standard mine equipment, the "Willison Automatic Coupler, Wing Type," The Colorado Fuel and Iron Corportation has recently installed the Willison couplers for use in handling its brick

• C. F. and I. uses foot-operated coupler

cars. The decision so to replace the old method of link and pin coupling was brought about through the efforts of the Labor-Management Committee.

By use of the Willison coupler the operator has only to step on the pedal to uncouple the cars. Formerly it was necessary to reach in between the cars to pull the coupling pin.

Shasta Dam Power Contract Approved

The first contract for sale of power from Shasta Dam in Northern California to a municipality, the town of Roseville, has been approved by Secretary of the Interior Harold L. Ickes.

According to terms of the contract, Roseville will pay $26,600 a year for the same amount of electric current which it formerly bought from the Pacific Gas and Electric Company for $45,096.

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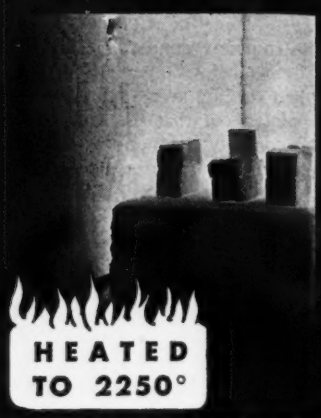

Brickseal provides a crackproof, vitrified armor for furnace linings. The small firebricks shown in the furnace were bonded and painted with Brickseal and heated to 2250°. Directly from the furnace they were plunged into cold water as shown below—a test for *any* material subject to expansion and contraction.

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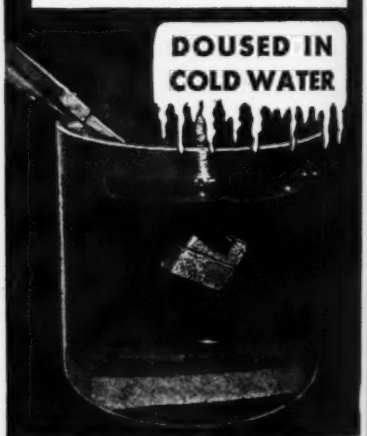

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In Our Mail Box

Editor, Western Industry:

It is my belief that, in general, the facts presented in your article on freight rates by James J. Broz are fairly accurate. We believe it is extremely unfortunate that anyone in the West should entertain the idea that the Western railroads have hesitated to provide rate adjustments which will permit their customers to maintain and expand their business.

Common sense and ordinary reasoning would tend to show that the railroads' prosperity depends upon the prosperity of the industries they serve. There is every reason, therefore, why they desire to establish rates which will encourage industry.

It must be remembered, however, that a railroad cannot establish rates merely to put someone on a *parity* with somebody else, in total disregard of distance and transportation conditions. For example, how could a shipper at Salt Lake City expect to have a rate to Chicago which is the same as the rate from Pittsburgh to Chicago, when the distance from Salt Lake City is three times as great as from Pittsburgh. All a Western shipper can ask in the way of rates to Eastern markets is that such rates can be just and reasonable and not discriminatory. So-called *parity* cannot necessarily be legally obtained.

So far as our company is concerned, we are willing to take our chances of securing reasonable and proper freight rates from the carriers themselves, and in case of disagreement, we can go to the Interstate Commerce Commission. This is a method that has been tried and found effective over a period of many years. We do not trust and moreover we deplore political activities in the making of freight rates. This includes legislation proposing freight rate parity, activity by groups of governors, and by the Attorney General of the United States.

(From a confidential letter).

Editor, Western Industry:

We still keep your editorial of March, 1945, on our desk, and believe it has the best definitions and comments on full employment that we have seen, and we take this means of expressing our approval and thanks.

Yours very truly,
Crawford & Doherty Foundry Co.
Portland, Ore.
By Don B. Card, Secty.-Treas.

Editor, Western Industry:

Your article (on the Economic and Social Council of the United Nations) in the July issue is interesting because well done. The reply you got from Eric Johnston is very interesting (see editorial page, July issue). It indeed speaks for itself, but fails to recognize that you, along with many other intelligent people, did believe that Section 4 of the "Charter" (labor-management charter for industrial peace, signed by Johnston, Phillip Murray and William Green) did mean a "freeze" of labor legislation and that only because of editorials such as yours was the clarifying statement issued. It is ambiguity of this sort that leads to future trouble.

ROBERT GAYLORD
(President, Ingersoll Milling Machine Company and chairman, board of directors, National Association of Manufacturers)

Vets Get First Crack At Surplus Property

Discharged veterans will be allowed 18 days in which to purchase surplus property from the Surplus Property Administration before that property is offered to the general public as a result of an arrangement made between the SPA and the Smaller War Plants Corporation, according to a recent statement by E. P. Madigan, SWPC regional official.

Furthermore, through an arrangement with the service officers of veterans' organization posts in the Northern California district all details regarding purchase of property, its inspection and delivery can be carried out through the service officers.

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THE WESTERN OUTLOOK . . . NEWS . . . STATISTICS . .

THE PICTURE

Most striking result of the sudden shift from war to peace is the fact that the manpower problem of the West has changed. This doesn't mean, however, that the manpower situation has suddenly switched from a state of scarcity to one of glut. Want ad columns of the daily press clearly show that demands on the labor market now pour in from a different direction. Regardless of dire predictions in certain quarters, big fact of the month is the imperative need for labor in the production of civilian goods and services.

Lumber—*Shortage Slows*

The thudding end of the war reflected itself immediately in the lumber industry by the swift cancellation of 225,000,000 board feet of material destined for the Army. In addition to this now being available for civilian needs, still further vast quantities should come on the market rapidly through the cutting off of other vast contracts which continued war would have made preempted.

As a result, the picture has suddenly changed from that of West Coast lumber production during the month of July, when totals sagged heavily below that of June with a production of 94,171,000 b.f., or 58.1 per cent of the 1941-'44 average, as compared with June's production of 83.6 per cent.

Cumulative figures for 30 weeks in 1945 and in previous years in thousands of board feet as reported by the West Coast Lumbermen's Association are as follows:

	30 Weeks 1943	30 Weeks 1944	30 Weeks 1945
Production	4,427,851	4,642,756	3,998,575
Pct. of 1941-'45 years of production	91.1%	95.4%	82.2%
Orders	4,774,626	4,873,825	3,998,575
Shipments	4,556,333	4,687,569	4,015,168

Western Pine Association figures covering Idaho White pine, Ponderosa pine, Sugar pine, and associated species for the current year ending July 28, 1945 are:

	1944	1945
Orders	2,101,473	1,864,636
Shipments	2,038,777	1,814,149
Production	1,858,088	1,667,001

Copper—*Production Drops*

Reflecting the decreasing demands of war, domestic mine production of copper in the West dropped 2,329 tons (3 per cent) in June from the May figure. In Arizona the decline was even more marked where the decrease reached 1,925 tons. Only increase in copper output for the West occurred in New Mexico for the month where there was a 772-ton rise.

	Ariz.	Mont.	Utah	Tot. Western, including other states
Jan.	25,371	9,003	19,692	67,707
Feb.	23,619	8,090	18,269	64,572
March	26,239	8,929	19,548	70,820
April	25,425	7,540	19,807	63,966
May	26,000	8,613	20,900	65,235
June(prelim.)	24,300	8,250	19,800	64,713

Aircraft—*War's End*

While experimental work will continue on new types of planes the end of the war has marked the end of many contracts for plane production in Western plants. Repercussions of the new peace on the industry are approximately as severe as on that of shipbuilding.

The severity, however, will be of short duration, for the changeover to production of planes for peace-time use will require only a short lapse of time.

Figures from the Western Procurement District, Air Technical Service Command, are as follows:

	No. of Planes	*Total Poundage*
January, 1945	1,630	22,440,000
February	1,436	21,146,000
March	1,621	24,146,000
April	1,437	22,973,000
May	1,336	22,578,000
June	1,196	20,007,000
July	906	16,012,000

Cement—*April Report*

PRODUCTION
(In thousands of barrels)

	—California—		Oregon-Wash.		Colo.-Wyom. Mont. Utah - Idaho	
	1944	1945	1944	1945	1944	1945
Jan.	1,080	1,258	317	269	156	173
Feb.	1,000	1,191	291	243	147	95
Mar.	1,231	1,226	381	250	195	122
April	1,217	1,257	368	268	138	130

War Production Contracts

In Thousands of Dollars—Source: War Production Board Statistical Division

NOTE: *The monthly award figures shown below represent only an approximation of the actual contracts, because cut-backs and cancellations are usually on previous awards, although reported in the current month. Also there is considerable lag in the reporting of individual contracts. However, WESTERN INDUSTRY is reporting the monthly awards by the successive subtraction method as an approximation.*

	MONTANA		—IDAHO—	WYOMING	—COLORADO—			N. MEX.	—ARIZONA—			—UTAH—		—NEVADA—	
	All Other		Ships	All Other	All Other	Aircraft	Ships	All Other	All Other	Aircraft	Ships	All Other	Aircraft	All Other	Ships	All Other
September 1944	211		141	230	1,016	52	....	2,200	....	100	401	3,716	...	400	...	1,413
October	135		...	329	1,620	..	139	803	....	—57	...	64	...	240	...	381
November	95		80	533	740	...	...	2,459	101	...	206	454	...	49,550	...	880
December	7,756		...	76	1,259	...	...	—435	—141	...	—58	30	...	197,361	...	....
January 1945	7,892		...	19	—58	...	...	—3,674	—979	...	116	18	...	294,722	...	1,319
February	15,784		...	103	—435	...	...	—9,720	—2,233	...	102	—524	...	588,922	...	2,638
March	31,051		..	18	—10,896	...	...	—23,169	—666	....	—10,884	—1,118	...	1,171,248	...	5,276
April	35,989		...	268	10,896	...	...	124,338	666	...	8,880	317	...	1,173,886	...	5,176
May	87,081		...	224	—13,376	—602	—1,561	—195,375	—11,515	—64,932	6,714	—13,157	...	3,439,011	...	10,343
Total from June '40	199,633		787	6,663	26,614	1,226	3,583	—10,630	—5,340	—64,932	25,476	13,727	900	6,986,841	156	58,473

	—WASHINGTON—			—OREGON—			—CALIFORNIA—			—TOTAL—		
	Aircraft	Ships	All Other	Aircraft	Ships	All Other	Aircraft	Ships	All Other	Aircraft	Ships	All Other
September 1944	82,689	6,287	70,190	...	2,081	5,057	122,840	44,758	32,032	205,681	53,663	116,665
October	....	—15,877	14,475	...	—171	805	—169,020	—13,111	40,631	—169,070	—30,020	59,333
November	133	38	12,205	357	15,689	7,554	—71,414	—27,822	33,102	—70,924	—11,809	106,856
December	....	21,408	490	...	2,659	—5,108	—137,791	—15,400	—16,145	—139,791	—54,050	185,286
January 1945	43,256	36,524	—3,347	86	—55,076	—16,964	—287,789	—285,556	—98,315	—244,447	—303,992	—303,992
February	83,154	53,995	12,035	172	—113,109	—38,625	—783,047	—653,073	—272,008	—699,721	—712,085	295,937
March	93,658	42,297	—7,689	344	—1,314,692	—81,693	—1,652,201	—1,406,150	—659,094	—1,558,199	—2,689,429	434,830
April	93,618	42,297	14,452	344	201,579	77,321	1,652,201	1,406,150	—527,638	—44,357	—2,689,429	434,830
May	324,621	111,329	—167,527	980	—147,168	—123,219	—1,676,526	—1,735,702	—1,562,810	—1,416,459	1,706,421	1,461,195
Total from June 1940	2,524,277	2,379,647	164,162	3,316	1,285,363	—44,485	6,850,307	1,625,553	—466,199	2,420,302	5,320,567	6,929,450

Electric Energy—*Output Tapers Off*

Production of Electric Energy for Public Use—In thousands of Kilowatt Hours—Source: Federal Power Commission

	Montana	Idaho	Wyoming	Colorado	New Mexico	Arizona	Utah	Nevada	Total Mtn.	Washington	Oregon	California	Total Pacific
September 1944	192,753	105,757	23,160	88,678	42,763	343,750	24,431	229,951	1,051,249	780,323	386,453	1,304,797	2,471,573
October	203,033	81,574	19,303	93,893	41,834	354,936	30,867	236,822	1,062,262	811,621	387,819	1,238,409	2,437,849
November	203,016	84,341	19,966	92,236	42,643	327,579	32,750	225,128	1,027,659	842,505	364,874	1,157,252	2,364,671
December	212,383	83,551	19,772	98,459	45,091	317,797	37,743	234,997	1,049,793	903,612	351,814	1,227,941	2,483,367
January 1945	206,308	93,231	22,209	97,960	44,440	330,526	37,908	234,315	1,066,897	954,958	331,980	1,259,968	2,546,906
February	188,781	84,619	18,385	87,980	40,066	297,242	29,773	206,485	953,331	868,143	295,324	1,122,227	2,285,694
March	195,818	95,634	19,135	98,484	44,741	295,689	32,387	279,405	1,061,291	953,643	366,037	1,244,797	2,564,477
April	189,951	108,446	19,636	91,413	45,024	260,694	34,449	225,369	975,982	853,860	393,408	1,297,580	2,544,848
May	173,987	115,524	22,309	94,597	44,350	277,722	40,783	231,922	1,001,194	855,407	385,759	1,434,904	2,676,070
June	168,252	107,417	24,163	91,779	49,224	295,580	41,936	207,115	985,446	785,238	379,731	1,413,033	2,578,002

Coal—*Now on the Upswing*

Reports by United States Bureau of Mines

	Montana	Wyoming	Colorado	New Mexico	Utah	Washington	Other	Total
Jan. 1945	460,000	956,000	760,000	153,000	660,000	140,000	2,000	3,131,000
February	390,000	792,000	730,000	130,000	540,000	128,000	1,000	2,761,000
March	472,000	890,000	763,000	157,000	629,000	140,000	1,000	3,043,000
April	325,000	712,000	565,000	115,000	532,000	110,000	....	2,359,000
May	356,000	810,000	516,000	135,000	543,000	110,000	1,000	2,471,000
June	503,000	922,000	586,000	134,000	636,000	122,000	1,000	2,904,000

Employment—*Eleven Western States*

Estimated Number of Employees in Non-Agricultural Establishments—In Thousands—Source: U. S. Bureau of Labor Statistics

ALL INDUSTRY DIVISIONS

	Montana	Idaho	Wyoming	Colorado	New Mexico	Arizona	Utah	Nevada	Total Mountain	Washington	Oregon	California	Total Pacific
July	110	95.1	62.6	265	79.5	107.0	155	41.6	916	645	336	2,599	3,580
August	110	94.1	62.9	264	79.7	105.9	154	41.5	912	643	342	2,617	3,602
September	109	97.6	62.2	267	79.4	105.2	151	40.3	912	650	544	2,591	3,585
October	109	96.9	61.9	267	79.1	105.0	149	38.9	907	645	339	2,579	3,563
November	109	97.5	61.6	266	78.8	105.9	149	38.7	907	642	339	2,547	3,528
December	112	97.3	63.2	270	80.5	110.4	151	39.3	924	645	344	2,570	3,559
January	102	92.7	60.5	257	77.9	108.1	139	37.9	875	624	361	2,504	3,489
February	101	92.9	59.8	257	78.0	109.1	138	38.1	874	621	353	2,506	3,480
March	102	92.6	60.5	258	79.5	109.5	137	38.6	878	619	347	2,487	3,453
MANUFACTURING													
July	13.1	16.0	4.4	49.2	5.1	16.4	34.2	3.0	141	268	137.1	953	1,358
August	13.2	14.3	4.7	47.7	5.1	16.9	33.0	3.0	138	264	141.6	964	1,370
September	12.9	17.3	4.7	47.2	5.1	16.8	29.9	2.6	137	267	144.8	942	1,354
October	14.0	16.7	5.0	49.4	5.1	17.2	30.8	2.3	141	266	140.1	918	1,324
December	13.2	14.7	4.8	48.3	5.0	18.1	28.5	1.9	135	254	138.1	877	1,269
January	12.6	13.1	4.2	44.9	5.1	18.9	26.1	1.8	127	251	162.8	854	1,268
February	12.0	13.2	4.3	46.4	5.3	19.5	26.5	1.8	125	249	154.9	847	1,251
March	11.9	13.5	4.2	47.2	5.1	19.4	22.5	1.7	126	247	147.0	824	1,218

The declines in over-all employment figures that have been registered month by month during the past year accelerated during June especially among the ranks of female workers, according to statistics made public by the California Division of Labor Statistics.

In the manufacturing industries the number of female production workers declined 14,200 below the May figure, and in the durable goods trades there was a drop of 13,000 for the same period. In the aircraft plants of the Los Angeles area the female factory force plummeted 5,800 from the May figure to a total of 37,500 still employed for the month of June. Women engaged in shipyards throughout the San Francisco Bay area numbered 1,900 less than they did in May.

For men, however, though there was a decline, it was not so marked. As of June's end the total male factory force in the state amounted to 146,500, representing a loss of 44,900, or 23 per cent, from the level obtaining in June of 1944. During the same year the number of female workers in factories had dropped by 30 per cent.

Changes in the non-durable goods field were virtually negligible in comparison. In June, 71,900 women were employed as compared with 72,400 a year ago. For men, the number working actually rose during the year from 112,100 a year ago to this June's 114,100.

EMPLOYMENT—DURABLE GOODS INDUSTRIES
(Figures from Calif. Div. of Labor Statistics)

	San Francisco Bay Area	Los Angeles Indus'l Area	Total State
December	182,300	290,400	565,900
January 1945	178,600	288,400	558,700
February	175,700	287,200	555,800
March	161,600	283,700	537,700
April	148,100	272,500	512,800
May	140,500	254,000	481,700
June	134,400	234,900	450,700

Oil—*Delivery Declines*

Though deliveries of all products for June throughout the Pacific Coast territory, including the five states of California, Washington, Oregon, Arizona and Nevada, showed an average increase of 30,000 barrels daily for the first six months of 1945 as compared with the same period for 1944, June deliveries, amounting to 1,085,000 barrels daily, were an average of 50,000 barrels under the daily delivery rate for May, according to the Bureau of Mines.

Production of crude petroleum in the territory and runs to stills showed only minor changes in June from the May figures.

Total amount delivered by the oil companies in the Pacific Coast area, including all deliveries to the federal government and any offshore shipments and including transportation and other losses, is as follows:

	All Products (Bbls.) 1944	1945
January	993,000	1,066,000
February	1,011,000	1,124,000
March	1,018,000	1,068,000
April	954,000	1,148,000
May	900,000	1,135,000
June	969,000	1,085,000

Iron—*Ore, Pig, Steel Off*

While iron ore shipments from the mines in Utah and California turned downward from the May figure during June by roughly 9 per cent, shipments from Wyoming mines went upward by approximately the same percentage.

Production of pig iron and steel in western plants anticipated the decline in production expected in many quarters for the coming months now that peace has been declared by falling off slightly in June from production totals for May.

IRON ORE SHIPMENTS FROM MINES
(Reported by Bureau of Mines)

	Utah	Wyoming	Calif.	Total
January	175,735	65,318	33,205	274,258
February	138,594	53,619	16,251	208,414
March	182,576	58,934	18,291	260,401
April	190,157	45,253	32,065	267,475
May	185,632	43,047	32,913	261,592
June	164,783	52,461	29,872	247,116

Pig iron and steel production for the Western area of the United States are reported by the American Iron and Steel Institute in net tons as follows:

		Percent of capacity	Year to date	Percent of capacity
Pig Iron:				
January	172,223	71.5	172,223	71.5
February	151,409	69.6	323,632	70.6
March	171,151	71.0	494,783	70.7
April	162,738	69.7	657,521	70.5
May	149,184	61.9	806,705	68.7
June	141,334	60.6	948,039	67.4
Alloy Steel*:				
January	2,549	----	2,549	----
February	3,489	----	6,038	----
March	5,475	----	11,513	----
April	2,474	----	13,987	----
May	4,423	----	18,410	----
June	2,674	----	21,084	----
Steel Total:				
January	367,927	88.2	367,927	88.2
February	333,170	88.4	801,097	88.3
March	369,642	88.6	1,074,467	88.7
April	344,695	85.3	1,419,142	87.8
May	308,784	74.0	1,727,926	85.0
June	306,721	75.9	2,034,647	83.5
Carbon Ingots, Hot Topped*:				
January	52,514	----	52,514	----
February	54,049	----	106,563	----
March	60,138	----	163,013	----
April	51,498	----	214,511	----
May	37,426	----	251,937	----
June	25,647	----	277,584	----

**Included in total steel.*

Aluminum—*Ingot Production*

National and Western states production for this year are shown below:

Month ('45)	Total U.S.	Western States
January	97,263	41,066
February	91,286	38,915
March	106,246	45,352
April	103,177	43,773
May	103,974	41,880
June	94,993	36,654
July	95,751	37,901

(From Aluminum and Magnesium Division, War Production Board)

Ships—*Labor Shortage Ends*

Cutbacks and cancellations throughout shipyards up and down the Coast have relieved the acuteness of the skilled manpower shortage existing in many of the crafts during the first part of the year.

In all the shipyards of the West Coast only six more keels are to be laid, over and above the two of the 11 laid in August which are to be completed. The six will be laid as follows: three in September; two in October and one in November.

Of the keels laid in June, one was cancelled, and those laid in July had 11 cancelled.

1945	Keels Laid	Ships Launched	Ships Deliv'd	Thousands of Deadwt. tons
Jan.	50	52	52	523
Feb.	42	45	55	567
Mar.	50	50	55	612
April	43	50	47	487
May	38	46	53	534
June	38	44	46	466
July	29	42	42	409

(Includes destroyer escorts and small aircraft carriers, but not larger naval vessels built by the navy itself. Also includes concrete barges, but not tugs or wooden barges. Tonnage figures from September on are adjusted, previous months unadjusted. Deadweight tons are used as a rough measure of the cargo carrying capacity of the ship. All figures from U. S. Maritime Commission statistical department.)

THE TREND

As the war production jogs to a stop for the turn-around, Western businessmen are moving swiftly towards the production of civilian goods for the tremendous domestic demand waiting to be filled. The trend points to more than a domestic demand, however, for greater attention than ever before is being given by business to the possibilities of foreign trade. Other aspects of the trend in the coming months include a rising emphasis on institution of a public works program to take up whatever slack will occur in employment during the reconversion period.

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THE WEST ON ITS WAY

CALIFORNIA

CONTRACT FOR PRIVATE PLANES—The Stinson Division of Consolidated Vultee Aircraft Corporation, and the Western States Aviation Co., Glendale, signed a contract for $1,000,000 worth of private planes. Simultaneously with the disclosure of this large order for 4-place Voyager 125 planes was the announcement by Stinson that Western States Aviation Co. has been appointed distributor for Stinson products for Southern California and Nevada.

BARGE CONTRACT—Moore Drydock Company has been awarded a contract by the Navy Department's Bureau of Yards and Docks for a large number of steel barges which will not in any way interfere with the ship-repair operations of the company.

AUTOMOBILE ASSEMBLY PLANT—General Motors Corporation has purchased 125 acres of land north of Van Nuys in the San Fernando Valley and plans to construct an automobile assembly plant which will employ 5,000 workers. This project is in addition to the doubling of the size of the South Gate plant, from which the first Chevrolet trucks are scheduled to come.

NEW STEAMSHIP COMPANY—The Sterling Steamship Company's services have been inaugurated by the World Trade Department of the Los Angeles Chamber of Commerce, their first vessel being a schooner carrying approximately 1,000 tons and will operate between Los Angeles harbor and all ports on the West Coast as far south as Panama. Their offices are presently located at 9631 Wilshire Boulevard, Beverly Hills.

CONSTRUCTION OF PAPER WAREHOUSE—Blake, Moffitt and Towne, paper products distributors, Oakland, have plans under way to construct a modern distributing warehouse and district offices in Oakland, having purchased the block of property bounded by 21st, Union and Poplar streets for that purpose. It is estimated that the property and modern reinforced concrete building to house warehouse and office will cost upwards of $250,000.

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Portland

W. T. Billard
536 W. Wash. Blvd.
Los Angeles

THOMAS TRUCK & CASTER CO.
1107 Mississippi River — Keokuk, Iowa

CONTRACT AWARD—Marinship Corporation has announced that the Sausalito shipyard has been awarded the most important contract in its history for immediate construction of a large number of special type steel barges of unusual size, this not to be confused with previously announced contracts for fifty Army invasion barges.

ISOPRENE RECOVERY AND PURIFICATION PROJECT — The Shell Chemical Division of Shell Union Oil Corporation is proceeding with plans for the construction and operation of a $2,000,000 isoprene recovery and purification project to be located adjacent to the butadiene plant now being operated in the Los Angeles area for the Reconstruction Finance Corporation, Office of Rubber Reserve.

COMBAT PLANE PRODUCTION—Ryan Aeronautical Co. has been assured by the Navy of continuation of combat plane production schedules after victory, and will triple production of its secret Navy fighters in the near future, employing more than 1200 new employees for the purpose.

PURCHASE AND ORGANIZATION OF PUMP COMPANY—Oil Well Supply Company, U. S. Steel Corporation subsidiary, has announced its intention of exercising an option for purchase of the assets of Neilson Pump Company of California, 3204 Cherry Avenue, Long Beach, with a large shop and warehouse at Taft, and stores and sales offices at Bakersfield, Huntington Beach and Ventura. Under the projected purchase plan the company's assets will be organized into what will be known as the Neilsen Pump Division of Oil Well Supply Company, continuing to manufacture a line of sub-surface pumps and accessories.

ENAMEL MANUFACTURING PLANT—Ferro Enamel Corp. of Cleveland, Ohio, is building a branch manufacturing plant at 5901 South Riverside Drive, Los Angeles, which will include warehouse facilities. Porcelain enamel frit and synthetic enamel industrial paints will be produced.

PHOSPHATE PLANT EXPANSION—The Stauffer Chemical Company, to take care of its additional source of phosphate rock and the doubling of production, will double its plant facilities at Richmond and Los Angeles.

EXPANSION—The Electron Equipment Corporation of South Pasadena, manufacturer of electronic industrial equipment, has enlarged its production facilities in preparation for the postwar market.

Free Your Humidifiers from

SLIME

A newly-developed material, Oakite Airefinder No. 52, successfully solves another worrisome problem—that of combating formation of slime and mold in humidifying equipment. Moreover, it also possesses potent lime-solubilizing properties that help prevent scale build-up and attendant clogging. Systems can continue to perform at peak efficiency . . . equipment maintenance time is reduced.

Solutions of Oakite Airefinder No. 52 are odorless, non-toxic and may be sprayed into the plant atmosphere WHILE THE PLANT IS OPERATING. Complete data describing this new water conditioner gladly sent on request—no obligation, of course.

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OAKITE Buy Bonds for Victory CLEANING

LOW COST Rust Prevention!

USE HARPER NON-FERROUS AND STAINLESS FASTENINGS

Rust is the Great Destroyer. Every year it causes damage of "war debt" proportions.

Fortunately, the cost of preventing rust and corrosion through the use of Harper Everlasting Fastenings is low. Of course, the first cost of a bronze bolt or a stainless screw is more than a comparable fastening made of common steel. Yet the difference in price is small, particularly when considered in relation to the total cost of a machine, instrument or other fastened assembly. Everlasting fastenings add longer service life to your product...and the ability to perform under tough conditions. Such qualities provide a big advantage over competition.

4360 ITEMS IN STOCK

Harper is known as "Headquarters for Non-Ferrous and Stainless Fastenings" . . . carries large and complete stocks of 4360 different items and is continually adding others . . . maintains large stocks of metals in bars, rods, wire, sheet and other basic forms from which special fastenings can be quickly made. Write for 1945 Catalog.

THE H. M. HARPER COMPANY
2649 Fletcher Street • Chicago 18, Illinois
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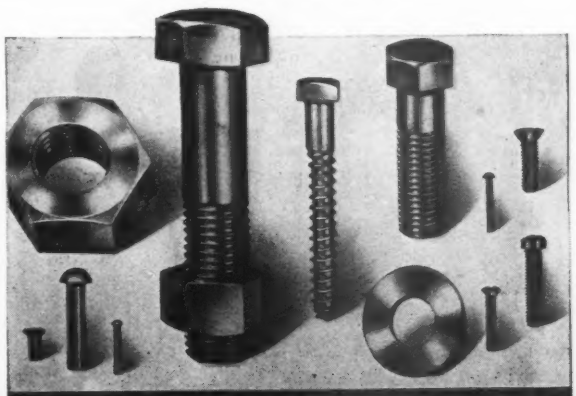

BRASS • BRONZES • COPPER
MONEL • STAINLESS

30 lbs.
LIFTS
6000
SERVICE LEVERLIFT
HYDRAULIC LIFT TRUCK
This is the modern—the practical—the low cost way of handling heavy loads. Slip a service LEVERLIFT under a loaded skid or pallet. A few easy strokes of the handle, and up go 3 tons off the floor, ready for a quick trip.
Quickly maneuverable in tight corners . . . built to take day-in, day-out pounding . . . simple yet rugged hydraulic lifting and lowering machanism . . . these are points to have in your new lift trucks. To get them, say "Service LEVERLIFT."

SERVICE CASTER & TRUCK DIVISION of Domestic Industries, Inc.
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SERVICE

POWER LIFT TRUCKS
MANUAL LIFT TRUCKS
LIFTERS • CRANES
TRUCKS & TRAILERS
DOLLIES • SKIDS
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THE WEST ON ITS WAY

PAPER CONVERTING PLANT—Southland Paper Converting Co., 3055 East 12th St., Los Angeles, is constructing a plant addition of 45,000 square feet at an estimated cost of $271,000.

PURCHASE AND EXPANSION—Essick Manufacturing Co., 1950 Santa Fe Avenue, Los Angeles, has acquired 22,000 square feet of land at 2416 East 14th Street on which is a two-story building containing 20,000 square feet of floor space. Another building will be erected to contain 12,000 square feet. At 2010 Santa Fe Ave., 4000 square feet are being added. Company makes air cooling systems, hoists, contractors' pumps, plaster and concrete mixers, road rollers and spraying equipment.

NEW BUILDING—Kinney Industries, 275 North Avenue 19, Los Angeles, is erecting a 25,000 square foot building for one of its companies on South Flower Street.

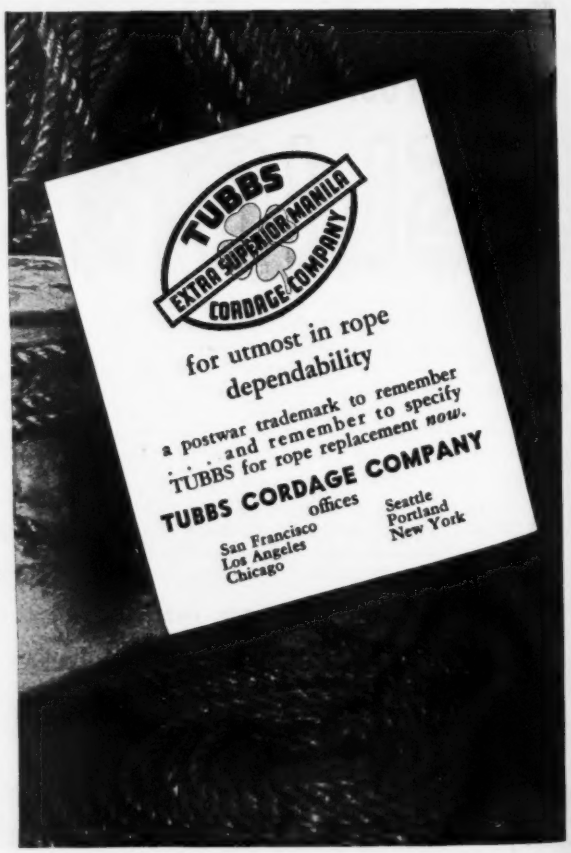
COLD STORAGE EQUIPMENT—California Consumers Corporation, 230 West Jefferson Blvd., Los Angeles, is adding new cold storage equipment in its Pasadena plant at an estimated cost of $294,230.

ACQUISITION OF PLANT—Shellmar Products Co., 510 South Arroyo Parkway, Pasadena, has acquired the Plexiglas fabricating plant of Rohm & Hass, and will move to 8990 Atlantic Blvd., South Gate.

FOOD PROCESSING UNIT PLANT—A. T. Case Co., 6100 Avalon Blvd., Los Angeles, is constructing a plant of 16,000 square feet at 1532 California Avenue, Monrovia, and will remove to that location. Company makes food processing units, emulsifiers, homogenizers, mixers, surgical sterilizers.

FABRICATION PLANT—Modern Metal Fabricators, Los Angeles, are constructing a building at 4653 Hampton Street to which location it will move as soon as completed. 10,000 sq. ft. of floor area will be available for sheet metal fabrication.

NEW BUILDINGS FOR AEROSOL DISPENSERS—Armstrong Engineering Company, Los Angeles, has acquired land and is erecting two buildings at 4618 Pacific Blvd., one to contain 30,000 sq. ft. and the other 5,000 sq. ft., for production of Aerosol (insecticide) dispensers at a cost of approximately $100,000.



CONCRETE PIPE PLANT EXPANSION—United Concrete Pipe Corp., Los Angeles, has added 100,000 sq. ft. for various plant expansions for the manufacture of ships, concrete pipe, irrigation systems and other steel products.

PLANT EXPANSION—Airesearch Mfg. Co., Los Angeles, is completing a 15,000 sq. ft. addition to its heat transfer products plant and installing new equipment and machinery at a cost of about $150,000.

NEW BUILDING FOR CELLULOSE PRODUCTS—Cellulose Products Co., Los Angeles, has acquired an acre of ground on Firestone Blvd., South Gate, and will erect an 8000 sq. ft. building. Various advertising specialties are made, as well as radio dial covers and other items.

ISOPRENE PLANT EXPANSION—Shell Chemical Division of Shell-Union Corporation, Los Angeles, is constructing a $2,000,000 isoprene recovery and purification plant adjoining its butadiene plant at 19821 South Figueroa Street.

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Sales • Leases • Appraisals

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"PULMOSAN" RESPIRATOR

for

PNEUMOCONIOSIS-PRODUCING AND NUISANCE DUSTS

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MODEL "M . 500"
BM 2150—*Bureau of Mines Approved*

SAFEGUARD THE HEALTH OF YOUR WORKERS . . . . .

by supplying them with "Pulmosan" face-fitting Respirators . . . The New M-500 Dust Respirator has the U. S. Bureau of Mines approval . . . BM-2150 for Pneumoconiosis-producing and nuisance dusts. This new filter unit provides large filtering area in a compact space and is easily cleaned for repeated use.

Unusually easy breathing, light and comfortable over long periods. All parts are replaceable at very low cost.

■ *Write for descriptive literature of "PULMOSAN" Industrial Safety Equipment — No obligation of course*

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1224 Wall Street **PRospect 4368**
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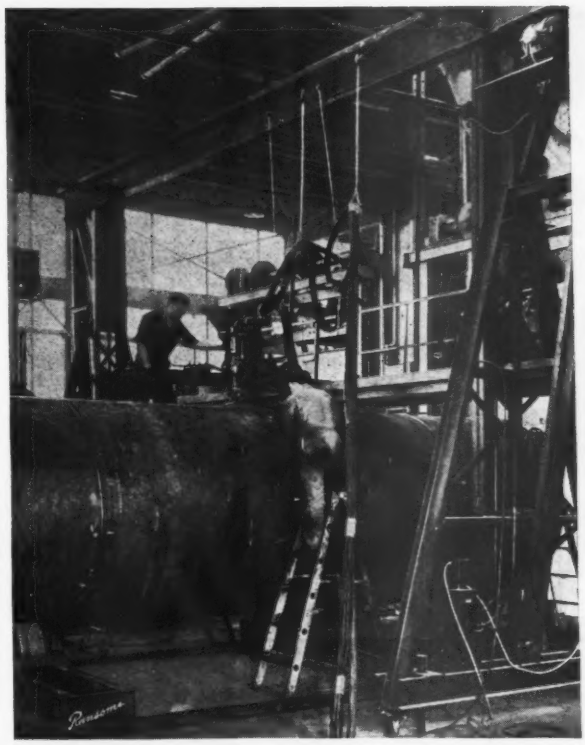

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. . . Weld it automatically on Ransome Positioners or Turning Rolls

Whatever the weight or diameter of your circular or cylindrical work up to 75 tons and 14 ft., there's a Ransome Positioner or Turning Roll Unit for rotating it at the right speed that will give you all the time-material-labor-saving benefits of automatic welding. Stronger, smoother welds...as much as 50% faster production. Investigate Ransome Positioners and Turning Rolls — today. Bulletin 210 gives all the facts.

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Pump and Machinery Corporation

Power Plant Equipment • Turbines & Turbo-Generator Sets • Diesel & Gas Engines • Pumps & Compressors • Air Conditioning & Refrigerating Equipment • Construction & Mining Machinery • Power Transmission Equipment • Locomotive Feedwater Heaters • Welding Positioning Equipment • Liquid Meters

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24RS-18A

STRIP... IN A HURRY

THROUGH

KELITE pH CONTROL

(Photo by ROHR AIRCRAFT CORP.)

Top area—20 minute test with ordinary stripper.
Lower area—20 minute test with Kelite A.C. stripper.

Laboratory comparison clearly shows how Kelite A. C. Stripper leads in speedy stripping action.

The instant A. C. Stripper hits paint, it starts to work in and loosen up the paint for quick removal. Nothing else will do the same job with equal speed and safety.

This is another specialized material in the sure-acting line of chemicals manufactured by Kelite for metal cleaning and processing.

Ask your local Kelite Service Engineer or write: **Kelite Products, Inc., 909 E. 60th Street, Los Angeles 1, California.**

"Kelite" Reg. U. S. Pat. Off. pH Chart copyrighted 1942 by Kelite Products, Inc.

KELITE-O KELITE pH Control

THE WEST ON ITS WAY

BRANCH ESTABLISHMENT—C & W Mfg. Co., Los Angeles, has established a branch manufacturing plant of a Chicago firm. Hair dryers, curlers, permanent wave equipment, etc., will be made.

REFRIGERATOR PLANT EXPANSION—The Modern Refrigerator Works, Glendale, is constructing an addition of about 7000 sq. ft. for increased production of refrigerators, restaurant fixtures, etc.

SYNTHETIC LATEX PRODUCTION UNIT—U. S. Rubber Co., Gardena, is erecting a new synthetic latex production unit at a cost of several hundred thousand dollars. The new unit is expected to increase production by 30 to 50 per cent, developing a field in cord fabric dipping, surgical gloves, foam sponge, fabric and paper impregnation, canning seals, and metal coating.

TOOLING WAREHOUSE—Lockheed Aircraft Corp., Burbank, has completed an 80,000 sq. ft. tooling warehouse at a cost of approximately $400,000.

EQUIPMENT INSTALLATION—Goodyear Tire & Rubber Co. of California, Los Angeles, is installing additional equipment in its synthetic rubber plant at an estimated cost of $242,700.

PLANT ADDITION—Hurum E. Reeve Co., Los Angeles, will build a 7,000 sq. ft. addition which will double manufacturing capacity for metal stampings, display fixtures, display hardware, paring knives, etc.

NEVADA

MINE REOPENS—The Tonopah Mine, recently damaged by fire, has resumed breaking ore, one of the damaged compressors at the main 1500-foot Mispah shaft having been repaired and the machine shop and other units again in good working condition.

OREGON

DRY KILNS—Two new dry kilns are being erected by the Southeast Portland Lumber Co., 6632 S.E. 100 Ave., Portland, at an estimated cost of $63,000.

COAL HANDLING HOIST

With this Detroit electric hoist and bucket in a boiler room, one man in a short time can store enough coal for long periods of firing.

ALSO OTHER TYPES

. . . electric hoists and cranes for various purposes. Write today for Bulletin 725A.

DETROIT HOIST & MACHINE CO.
8215 Morrow St., Detroit 11, Mich.

DEVELOPMENT OF ALUMINA PLANT—Salem's $4,060,000 alumina plant, built by Chemical Construction Company for Columbia Metals, promises to develop into a $50,000,000 to $100,000,000 operation. A stockpile of 15,000 tons of clay which will yield 36 to 37 per cent alumina, or about 10,000,000 pounds of alumina, is on hand, and the plant will have a capacity of 200 tons daily.

NEW VENEER MILL—U. S. Plywood Corporation, in continuance of its West Coast expansion, announces acquisition of another Oregon company and intention to build a new veneer mill there. The company is Siuslaw Forest Products Co. which has a sawmill at Mapleton, and the veneer mill will go in adjacent to the Mapleton sawmill, increasing the supplies available at the Seattle plant. U. S. Plywood has also obtained important interest and full output handling contract of Cascades Plywood Corp. of Lebanon, when last year it helped finance a take-over of that plant from Evans Products Company.

NEWLY ERECTED PLANT—Centralizing the operations of its Spokane and Portland factories, the Fowler Manufacturing Company, manufacturer of electric water heaters, recently moved production facilities and offices to its newly erected plant located at S.E. 26th and Gladstone, Portland.

PEELER PLANT—Aberdeen Plywood Corp., is opening a $150,000 peeler plant at Tillamook, near the company's logging operation, and will engage in the veneering process alone.

PLANT ADDITION—Air Cleaner Service Co., 4624 S.W. Bertha, Portland, is building a plant addition at an estimated cost of $10,000.

EXPANSION PLANS—Crown-Zellerbach Corporation announced expansion plans for plants in West Linn and Camas, Washington, to cost approximately $15,000,000.

WOOD SHAVINGS—McGranth Wood Shavings Co. has been established at 1002 S.E. 9th Avenue, Portland, to handle the baling and shipping of wood shavings. They are sold to insulation and refrigeration companies and for use as poultry litter.

PLANT ADDITION—Griffith Rubber Company, 2439 N.W. 22nd Street, Portland, is building an addition to its plant, the estimated cost of building and equipment estimated at $141,219.

PUNCH-LOK

Hose Clamps and Fittings

LOOK, it's locked for safety

Today's Best Bet!

Keep Buying War Bonds

FOR YOUR PRODUCTION AND MAINTENANCE OPERATIONS

For descriptive catalog and name of nearest distributor, write Harry M. Thomas, Pacific Coast Representative, Dept. B, 1554 Oakland Ave., Piedmont 11, Calif.

PUNCH-LOK COMPANY

321 No. Justine Street, Chicago 7, Illinois

Use THE CRACK-FILLER THAT STAYS PUT!

PABCO WHITE HYDROSEAL

This famous asbestos caulker really "welds" itself to stucco, brick and cement! Doesn't crack, shrink or pull away. It's waterproof and leakproof. And so quick and easy to apply.

Now Is the Time to "Hydroseal" Dangerous, Unsightly Cracks Around

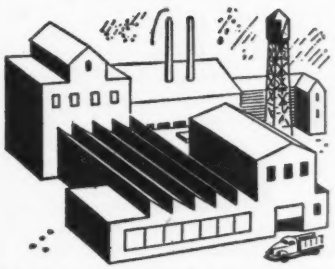
Doors • Eaves • Gutters • Window Frames • Spouts, etc.

DISCOVER THESE FAMOUS PABCO "FACTORY-SAVERS"

PUT A SUPER-SHIELD ON YOUR ROOFS!

PABCO COOLITE*

Reg. U. S. Pat. Off.



LIQUID ALUMINUM ROOF COATING

Lengthens roof-life by reflecting up to 80% of Sun's destructive rays!... In summer, it cools interiors!... In winter, it resists rain, freeze, snow!... Gives soft, silvery-aluminum finish to your roofs!

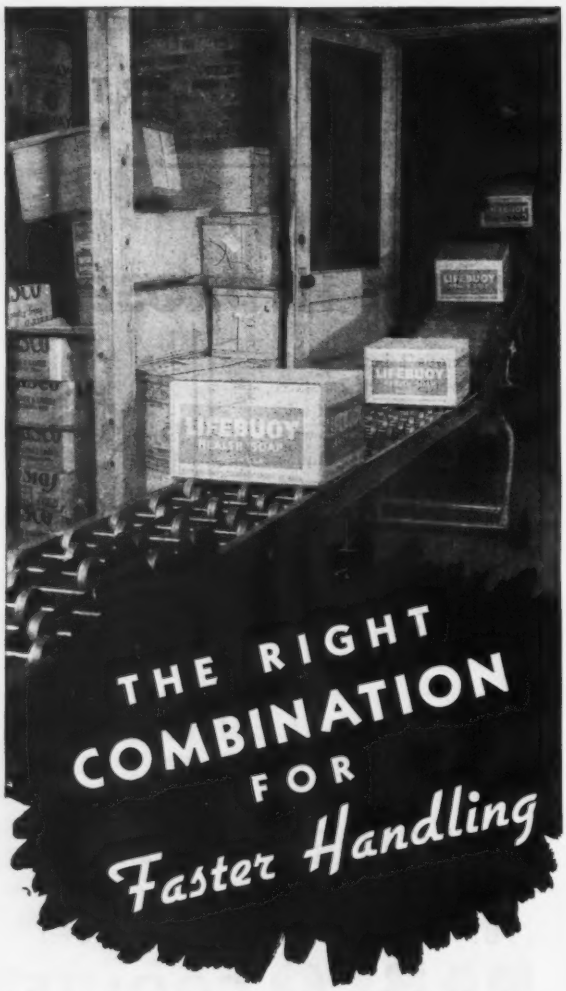
* *There's also a PABCO Aluminum for metal roofs and walls*

Look in the "Yellow Pages" for your local PABCO dealer

THE PARAFFINE COMPANIES, INC.

SAN FRANCISCO, 19

Makers of Pabco Paints, Roofings, Building Materials, Pabco Linoleums, Pabco Mastipave Heavy-Duty Flooring



Your requirements for faster handling of packaged materials can be met with the right combination . . . Rapid-Wheel Portable Gravity Conveyor and the Stevedore, Jr.

Each section of Rapid-Wheel Conveyor is a self-contained unit, adjustable from a minimum 6" to a maximum 50" operating height. . . . (Cam-Lock standards — same as used on Stevedore, Jr.) Sections are easily coupled together with self-locking coupler. Reversible curve sections and adjustable guard rails are standard accessories.

Rapid-Wheel Gravity Conveyor furnishes the power down-grade, while the Stevedore, Jr. Power-Belt Conveyor saves man-hour-handling time in loading, unloading, stacking and elevating operations. Quick-acting "Cam-Lock" standards on the Stevedore, Jr. provide a range of adjustments to meet varied operating conditions — from 18" level to delivery height of 72". The Stevedore, Jr. plugs in standard 110 volt lighting circuit and lifts a 225-pound distributed load at the rate of 50' per minute.

Write us about your handling problems and get facts on how you can save time and money.

West Coast Distributors: E. C. Buehrer Assoc's., San Francisco 7, Calif. M. E. Canfield Co., Los Angeles 13, Calif. Murry Jacobs Co., Seattle 4, Wash. Oregon Handling Equipment Co., Portland 9, Ore. Murray Sales Co., Denver 4, Colo. The Horsley Co., Ogden, Utah.

Manufacturers of
STEEL FORGED CASTERS - TRUCKS & CONVEYORS - POWER BOOSTERS

The Rapids-Standard Co., Inc.

Sales Div.—374 Peoples Nat'l Bank Bldg., Grand Rapids 2, Mich.

THE WEST ON ITS WAY

NEW VENEER MILL—U. S. Plywood Corporation announces acquisition of Siuslaw Forest Products Co. which has a sawmill at Mapleton, owns some 300 million feet of standing timber, largely fir, and has options on substantial additional tracts. It is also building a new veneer mill adjacent to the Mapleton sawmill.

NEW COMPANY—Articles of incorporation have been filed at Salem for the Allied Ship Service and Supply Co. The company will waterproof and flame-proof canvas life jackets used by the Transport Command and War Shipping Administration.

PAINT FACTORY—Westcraft Paint Co. are building a $50,000 factory and wholesale store for their newly formed company at 16th and Quinby. Structures will include a two-story plant building 60x90 feet, reinforced concrete, and a 50x44 foot two-story office building and sales room, also of concrete.

FEED MILL—Pacific Cooperative Poultry Producers, 306 S.E. Ash St., Portland, is constructing a $256,500 reinforced concrete feed mill at Eugene. The mill will be erected by the slip form method and is to have a storage capacity for 200,000 bushels. The estimated cost includes elevators, conveyors, cleaners, grinders, mixers and other equipment.

REMODELING—The Damascus Milk Company, 3342 S.E. Morrison Street, Portland, is remodeling its plant facilities at an estimated cost of $98,000.

TIMBER CREOSOTING PLANT—McCormack & Baster Co., Board of Trade Building, Portland, are constructing a timber creosoting plant consisting of a main structure of concrete and frame construction, storage tank, boiler and pressure retort vessel, on a 50-acre site next to the Western Cooperage plant in St. Johns, to cost approximately $130,000.

LUMBER DEPOT—K. C. and K. June McIntosh and Peter di Paolo, all of Eugene, have incorporated the Cascade Lumber Terminal Corporation and plan to construct a lumber receiving terminal to collect lumber from mills east of Eugene and prepare it for shipment.

AIR LINES EXPANSION—United Air Lines are expanding facilities at Portland airport at an estimated cost of $80,000.

ELECTROLIFT
Pick-up FOR POUNDS AND PRODUCTION
• With ElectroLift it's easy and simple. The slightest touch of the operator's finger on the button control lifts the load and directs it to the desired location. It's as simple as that.
• Strongly built, ElectroLift LIFTS loads up to 6 tons, and does its work quickly – speeding production and slicing man-hour handling costs.
ELECTROLIFT, INC.
30 Church Street, New York 7, N. Y.
ELECTROLIFT

PURCHASE OF PLANING MILL—The Albany Planing Mill, located near the Bronson Lumber Company property south of Albany city limits, has been purchased by Lewey Lung, former superintendent of the Albany Plylock plant and later of the Oregon Plywood Co. of Sweet Home.

EXTENSION OF STEEL FABRICATING PLANT—Victory Steel Fabricating Co., 508 N. Tillamook, is rebuilding and extending its plant to cost approximately $13,877.

UTAH

RFC CONTRACT—RFC, through its Office of Defense Plants, has authorized, at the request of the ODT, an increase in its contract with Pacific Intermountain Express, Salt Lake City, providing additional motor transport equipment, at a cost of approximately $300,000, resulting in an over-all commitment of approximately $700,000. Pacific Intermountain Express, transporters of military supplies in Utah and adjoining states, will operate these facilities, title remaining in RFC.

WASHINGTON

CROWN-ZELLERBACH DEVELOPMENT—Crown-Zellerbach plans to spend $15 million in a post-war improvement program. Long-term contracts with Time, Inc., and another large eastern publishing firm for 45,000 to 60,000 tons of coated magazine paper annually will require important changes in the West Linn, Ore., mill. Capacity of the sulphate mill at Camas will be doubled and the first sulphate bleaching in any of the company's plants will be started. A new paper machine will also be installed at Camas to produce facial tissues. Construction of a new kraft chemical recovery unit in Port Townsend is already under way, and a new drum barker will be added and modern hydraulic log barker installed in the newsprint mill at Port Angeles.

COLD STORAGE AND FOOD PROCESSING PLANT—Costing about $100,600, the Farmers Cooperative Union plans a cost storage and food processing building of reinforced concrete and frame construction in Puyallup.

Off-balance bandsaws, caused by uneven flooring, often account for uneven cuts. Not so, however, where the Johnson Metal Cut-off Bandsaw is used. The exclusive 3-point base provides rigid anchorage. No matter how uneven the flooring, the Johnson Bandsaw sets solid, prevents irregular cuts.

Other Important Johnson Features

1. Thinner blade reduces metal waste
2. Box type frame protects movable parts
3. Four speeds provide right speed for every metal, hard or soft
4. Hydraulic control insures even pressure throughout cut
5. Coolant attachment minimizes friction, prolongs blade life
6. Automatic shut-off after cut is completed

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JOHNSON MANUFACTURING CORP.

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RIDGID
TRADE RIDGID
. . . the pipe wrench with the money-saving GUARANTEE!
UNCONDITIONAL GUARANTEE
If this Housing ever Breaks or Distorts we will replace it Free
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THE RIDGE TOOL CO.
ELYRIA, O.

• That straight-forward guarantee means that the RIDGID saves you all bother and expense of wrench housing repairs — an important saving. But this unusual wrench gives you also full-floating hookjaw and replaceable heeljaw that take hold instantly, won't lock on pipe, won't slip. Adjusting nut in open housing always spins easily. Safe powerful I-beam handle has comfort-grip you'll like. For economy and easier work, ask your Supply House for the RIDGID.

RIDGID

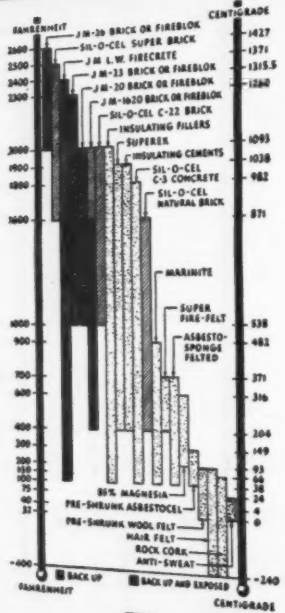
WORK-SAVER PIPE TOOLS

THE RIDGE TOOL COMPANY · ELYRIA, OHIO, U. S. A.

"HERE'S ALL YOU NEED TO KNOW ABOUT INDUSTRIAL INSULATION..."

Johns-Manville INDUSTRIAL INSULATIONS

WHAT TO USE



for EVERY TEMPERATURE EVERY SERVICE CONDITION

● THIS practical chart shows at a glance the recommended material for every temperature from 400° below zero to 2600° above. A copy in large wall-hanger size, color-coded, is yours for the asking... write today!

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BAY CITIES ASBESTOS CO., as near as your telephone, carries large stocks of all available J-M insulating, packing and gasket material. As authorized J-M Technical Service Unit, we have large crews of skilled, experienced insulation experts available on a contract basis to handle all types of industrial, commercial, marine or home insulation. For complete information:

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LED-PLATE • TITE-SEAL • ENSIGN ROPE, CANVAS,
METAL AND BELT PRESERVER

THE WEST ON ITS WAY

SALE OF SHIPYARDS — Barbee Marine Yards, with shipbuilding plants in Seattle and Kennydale, has been sold. The Seattle yard will be operated by Robert S. Stewart, its buyer, as a moorage for vessels of various types, while the drydock and other shipbuilding and repair equipment have been sold to other companies here. The Kennydale plant, which includes a sawmill, will be used as a sawmill, with the shipways serving for air-drying of lumber. The buyers of this property are O. B. Bloom, M. E. Blackmar and Alex Cugini.

SAWMILL PLANNED—The Goodyear-Nelson Hardwood Co. will immediately start construction of a hardwood sawmill on the Port of Port Angeles fill and will be purchasing hardwood logs and manufacturing lumber, employing a crew of 12 men.

GRAPE PROCESSING PLANT—Bedford and Ellison of New York and Chicago are building a $20,000 grape processing plant in Grandview.

STORAGE PLANT—The Pacific Alaska Corporation, Hoquiam, is constructing a frame cold storage and ice plant in Hoquiam to cost about $25,000.

NAVY PROJECT—The Navy Department has announced a special project for the Naval Supply Depot at Spokane in the amount of $2,230,000, consisting of five standard storehouses, including heating and sprinklers; paint and oil storehouse; two-story extensions to Administration Building, and 16,000 square feet of roads and railroad trackage.

WYOMING

PURCHASE OF FIRM—Hunt Tool Co., Casper, has been purchased by Fred M. Manning. He has also bought the interests of E. E. Brown in the Manning & Brown Co., Inc., and the Industrial Power Unit, Inc. The Hunt Tool Co. will be known as Western Oil Tool Co.

PIPELINE—Utah Oil Refining Co., a subsidiary of Standard of Indiana, has begun construction of a 10-inch pipeline from the Rangeley, Colo. field to the company's pumping station at Wamsutter. The line will be 152 miles long and will cost $4½ million.

Faster Handling
OF PIPE, PLATE, STRUCTURALS

PLATE GRIPS – Safe, positive grips in a variety of sizes for handling vertical plates or upending horizontal plates and assemblies.
PIPE TONGS – Heavy duty tongs for easy handling of pipe, billets, bars, timber. Locks in open position. Picks up from floor surface.
PLATE HOOKS – Handle one or more horizontal plates. Used in sets of 2 or 4. Two styles.
RAIL TONGS – Handles large or small rail. Two sizes with 3" or 4½" jaw.
Write for Illustrated Catalog

DOWNS CRANE & HOIST CO.
MECHANICAL ENGINEERS
540 W. VERNON AVENUE
LOS ANGELES 37, CALIF.

Electric Cranes ● Hand Cranes ● Jib Cranes ● Sheaves ● Sheave Blocks
Plate Grips ● Plate Hooks ● Crane Trolley Hoists ● Crane Wheels ● Crane End Truck Units ● Jib Crane Fittings ● Automatic Mechanical Load Brake Crane Hook Blocks

Pamphlet Review

Seniority Problems During Demobilization and Reconversion. By Frederick H. Harrison. This title speaks for itself, and the pamphlet has been prepared by a former research assistant at the Industrial Relations Section and now Assistant Professor of Economics at the University of Chicago. The report supplements "Seniority Policies and Procedures as Developed through Collective Bargaining" issued in 1941. Price 75 cents. Industrial Relations Section, Princeton University, Princeton, N. J.

Eight manuals in the Navy's aviation training course series have been offered for public sale which are as follows:

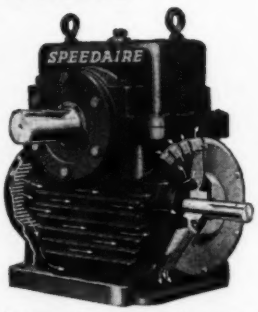
Blueprint Reading and Layout Work (NavPers 10306) Price 30 cents
Aircraft Electrical Systems (NavPers 10315) Price 35 cents
Advanced Work in Aircraft Electricity (NavPers 10316) Price 40c
Airplane Structures (NavPers 10331) Price 30 cents
Aircraft Instruments (NavPers 10333) Price 40 cents
Aircraft Propellers (NavPers 10336) Price 40 cents
Photography, Vol. I (NavPers 10371) Price 60 cents
Photography, Vol. II (NavPers 10372) Price 55 cents
Superintendent of Documents, Government Printing Office, Washington, D. C.

Problems of Reemployment and Retraining of Manpower During the Transition from War to Peace. A selected, annotated bibliography prepared by Helen Baker, Assistant Director of Industrial Relations Section of Princeton, is a complete revision of a mimeographed edition issued in 1944 and offered as a check list for the executive in industry, labor and government as a means of insuring that he is up to date on experience in other areas than his own. Princeton, N. J. Price 50 cents.

G.I.'s Opportunity. Selections from past issues of "Adventures in Business" is described as a "guide book for those who would own their own business . . . not just a job, but a chance for true achievement . . . 34 authentic case histories of 34 successful concerns . . . the men, the ideas, the methods . . . that made them great." Price 25 cents. Walter Knott, publisher. Ghost Town Press, Buena Park, Calif.

From a Plant Engineer:

"Clevelands' Performance Sold Us Speedaire"



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PAMPHLET REVIEW *(Cont'd from Page 103)*

Cartels or Free Enterprise. By Thurman W. Arnold. Judge Thurman W. Arnold in a 32-page pamphlet claims that the restoration of free enterprise in America after the war rests on the elimination of cartels and other restrictive devices and gives seven specific results whenever private groups have acquired control of the market. Price 10 cents. Public Affairs Committee, Inc., 30 Rockefeller Plaza, New York 20, N. Y.

How to Handle Your NLRB Case. Continuing its series of special reports on collective bargaining techniques, the Labor Relations Institute has issued an employer guide to the operations of the National Labor Relations Board. The Institute's first report on collective bargaining was "How to Avoid Unfair Labor Practices," and others now in process are "Clauses for Your Union Contract" and "How to Negotiate a Labor Agreement." Price $1.00 to members, $1.50 to others. Labor Relations Institute, 1776 Broadway, New York 19, N. Y.

There Can Be Jobs for All! By Maxwell S. Stewart. Beveridge's plan for full employment is presented here in summary by the Public Affairs Committee, Inc. Pamphlet No. 105. Price 10 cents. Public Affairs Committee, Inc., 30 Rockefeller Plaza, New York 20, N. Y.

Veteran's Guide. By Dallas Johnson. A 32-page illustrated pamphlet deals with the problems of returning service men, whether able-bodied or handicapped, their legal rights, how to go about getting a former job back, etc. Pamphlet No. 102. Price 10 cents. Public Affairs Committee, Inc., 30 Rockefeller Plaza, New York 20, N. Y.

Employee Organization for Fire Safety. Published by the National Fire Protection Association, this 40-page pamphlet is based principally on three N.F.P.A. standards: Exit Drills and Alarm Systems; Suggestions for the Organization, Drilling and Equipment of Private Fire Brigades first adopted by the Association in 1902; and The Watchman, adopted in 1925, each of these standards having been revised to suit present times. Price 25 cents. National Fire Protection Association, 60 Batterymarch St., Boston 10, Mass.

Employment Tests in Industry and Business, A selected, annotated bibliography, prepared by the Industrial Relations Section of Princeton University, gives a selected bibliography based on study of materials collected over years from special libraries of the Industrial Relations Section and the Department of Psychology at Princeton University. Price 50 cents. Princeton University, Princeton, N. J.

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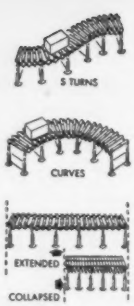

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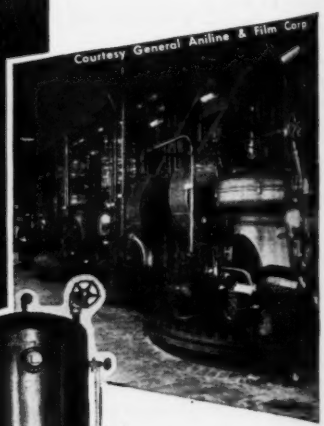

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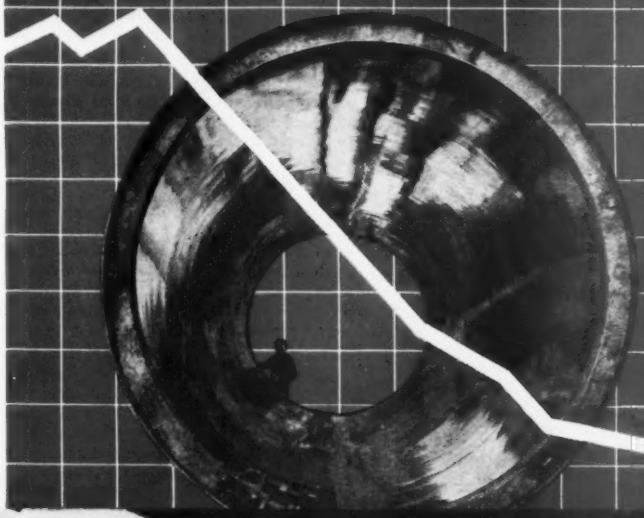

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WESTERN TRADE WINDS

NEWS ABOUT THOSE WHO DISTRIBUTE AND SELL INDUSTRIAL EQUIPMENT AND MATERIALS

Vincent J. McIntyre

A new organization, the **Bandoli - McIntyre Co.**, Los Angeles, has been formed to distribute wholesale appliances, commercial and industrial equipment throughout the Southern California area. The company was formed by **Marvin S. Bandoli**, Chicago, and **Vincent J. McIntyre**, New York, general partners in the firm. Mr. McIntyre is now in Los Angeles as the active head of the new organization formerly holding many sales and executive positions with the Kelvinator Division of Nash-Kelvinator Corporation, Detroit. Mr. Bandoli was also a Nash-Kelvinator sales executive, beginning his association as a district manager.

Edward P. Bishop & Associates, a service designed to provide reconverting manufacturers with new products for postwar manufacture, name as representatives in the west coast area **Charles Talmadge** and **Joseph Steers**. Talmadge is San Francisco branch manager, and he and Steers will shortly open offices in Seattle and Portland.

The Detroit Steel Products Co., manufacturer of Fenestra Products, has reopened a branch sales office in the Russ Building, San Francisco, **George B. Quamby** being manager.

Walter Epstein will head **Hoffman Radio Corporation's** new San Francisco branch. Sales area will cover the coastline from Palo Alto north to the Oregon border and the counties of Alameda and San Leandro.

George E. Zweifel & Co. has moved to their new location, 103 S.W. Front Avenue, Portland 4, Oregon.

Caine Steel Company announce the following appointments of representatives in the western states: **Coast Equipment Company**, San Francisco, northern part of California; **Garlinghouse Brothers**, Los Angeles, southern part of California; **Thompson Pipe & Steel Co.**, Denver, entire states of Colorado and Wyoming; **Intermountain Equipment Company**, Boise, Idaho, states of Idaho, Nevada and Utah; **Arnold Machinery Company, Inc.**, Salt Lake City, states of Nevada and Utah; **Francis Wagner Co.**, El Paso, Texas, western counties in Texas, and state of New Mexico; **Westland Equipment Co.**, Portland, state of Oregon.

T. Verhoef has been appointed Seattle manager, **Broderick & Bascom Rope Co.**, St. Louis, succeeding **E. B. Drisko**, resigned.

Victor S. Herrington has been appointed district manager of the newly created **Transportation Division** of **General Electric Company's** Pacific District Apparatus Department, and will make his headquarters in San Francisco.

Roland C. Dart, recently named district manager of the Portland branch of **Henry Disston & Sons, Inc.**, has resigned that post and accepted a position with **P. L. Crooks & Co., Inc.**, Portland, distributors of logging, sawmill and industrial equipment.

Robert W. St. Clair has been appointed sales manager of **Tungtip Tools Division, Lowell & Grayson**, Los Angeles. Mr. St. Clair was formerly general manager of Almquist Brothers & Viets, the Los Angeles supply house which has represented Tungtip Tools throughout Southern California.

Edgar W. Bartz, formerly of East Pittsburgh and Trafford, Pa., has been appointed welding specialist for the San Francisco Bay area by the **Westinghouse Corporation**. In his new post, Mr. Bartz will have charge of all Westinghouse activities having to do with the promotion and use of electric welding in this area.

The Wickman Corporation, Detroit, has appointed **Jack Brewer** of Los Angeles as exclusive Southern California distributor.

G. E. Jackson

G. E. Jackson, well known in Northern California and particularly in the Oakland-East Bay area, has recently been promoted to Regional Manager of **Kelite Products, Inc.**, Los Angeles.

Albert R. Tucker has been appointed West Coast manager of the **Electrochemicals Dept.** of **E. I. du Pont de Namours & Company**. The El Monte plant and sales office at El Monte, Calif., and the district sales office at San Francisco will be consolidated under Mr. Tucker, who has been Philadelphia district manager for the department since 1936. West Coast headquarters will be maintained at El Monte.

W. E. Vaughan, sales manager of **Field-Ernst Envelope Company**, announces the removal of their Los Angeles plant from 411 Wall Street to 6811 Stanford Avenue.

William H. Homeyer and **Francis J. Blake** have been appointed district sales managers of **The Carborundum Company**, Niagara Falls, N. Y., in the Southern California and northern California areas, respectively.

E. O. Locher, who since 1937 has been identified in various capacities with **Pacific Airmotive Corporation**, Glendale, Calif., has been made vice president and in charge of all branches.

Russel G. Akin has been appointed as director of sales and advertising, **Littlefuse Inc.**, who have plants at Chicago and Elmonte, Calif.

George R. Sommers

George R. Sommers has been made Pacific Coast sales manager of the Lighting Division of **Sylvania Electric Products, Inc.**, with headquarters at San Francisco, Calif.

Harvey A. Nylander, previously with **General Electric Company** and replacing **John E. Carrol** who has resigned to become manager for **Construction Machinery Div.** of **Harron, Rickard & McCone Co.** of Southern California, has been appointed Pacific Coast manager for the **American Hoist & Derrick Co.** of St. Paul. Mr. Nylander will have charge of the area covering the eleven western states and Hawaii and Alaska, and resides in Albany, Calif.

L. V. Schroder has been named merchandising manager in Spokane, Washington, for the **Graybar Electric Co.**, New York. **D. L. Llewellyn** has been appointed to the newly created position of personnel director, and will make his headquarters in New York.

Grand Central Airport Co., Glendale, Calif., has been appointed California distributor for the Ercoupe, and **H. W. Hitchcock**, assistant sales manager, will be actively in charge of Ercoupe sales.

E. C. Buehrer, San Francisco, has just taken on two new lines. One is the **Ace Company**, Ocala, Florida, manufacturers of industrial blowers; the other the **Vacuum Industrial Equipment Company**, Pittsburgh, Pa., industrial vacuum cleaners.

Harold Q. Noack has been appointed by **Phelps Dodge Copper Products Corporation** as Pacific Coast manager, directing sales. His territory will include Washington, Oregon, Idaho, California, Nevada, Arizona, Oklahoma, Texas, New Mexico, Utah, and the Hawaiian Islands, with headquarters at the Los Angeles plant. Previously, Mr. Noack held the position of Pacific Coast sales manager of Hubbard & Company for more than 20 years.

Burklyn Company has been appointed West Coast representative for the **Auto Compressor Company**, Wilmington, Ohio, and the **Equipto Division** of the **Aurora Equipment Company**, Aurora, Illinois. Burklyn Company has trained production and tooling engineers available for consultation on industrial production problems in Seattle, Portland and Oakland offices, as well as Los Angeles headquarters.

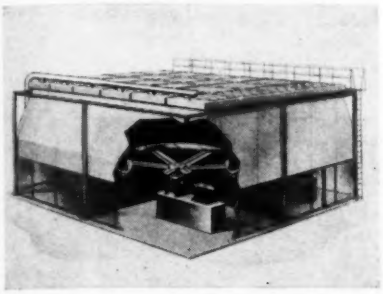
H. J. McPeak

H. J. McPeak has been appointed sales engineer in charge of export sales for **Process Machinery Division** of **Enterprise Engine & Foundry Co.**, San Francisco. Mr. McPeak was formerly assistant regional director for General Motors in South America and also served as General Motors' regional sales promotion director for the Western states, as assistant national sales manager for GM trucks and as operating director of the General Motors Mass Selling Department.

THE SHOWCASE

261

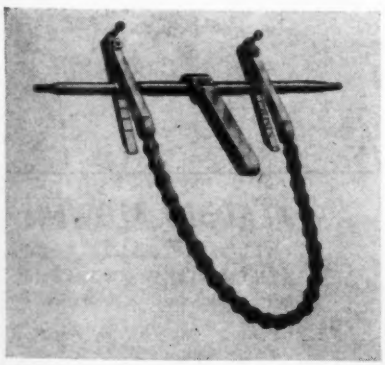
Fin-Fan Cooling Unit—Cooling sections employing the K-fin tube construction are cooled by formed draft fed by air from the cooler layer at ground level and supplied by fans with variable pitch blades and with variable speed drive. Vertical air flow against static head assures even air distribution over cooling surfaces. Fin-Fan Units are designed for pressures to 5,000 psi and temperatures to 1,500° F. Coils are located to



provide sufficient static head for pump suction. Tubes can be removed and replaced quickly and all mechanical equipment is readily accessible from the ground. The Fin-Fan Unit embodies the combined experience and engineering skill of the Griscom-Russell Company and the Fluor Corporation, Ltd. *The Fluor Corporation, Ltd., Los Angeles, Calif.*

262

Turnbuckle Adjustment Set—Characterized as a tool which will save time, temper, bruised knuckles, and scratched turnbuckles, this new turnbuckle adjustment set consists of a turnbuckle wrench and two V-shaped retainers which are connected by a 12-inch length of link chain. When the retainers are dropped over the swedged-cable fitting, converging "steps" in the retainers find their own adjustment automatically on any fitting from 3/16" to 11/16" in diameter —the weight of the chain holding them in position, although a set-screw is provided for use



when needed. The chain acts as a rigid bar against the simultaneous clockwise and counterclockwise torque of the swedged cable fitting set up when the turnbuckle is turned—while its vertical flexibility permits adequate clearance in the tight spots. The turnbuckle wrench is self-adjusting and its grasping surfaces cannot scratch or mar the turnbuckle. The grip automatically tightens as the wrench handle is pressed down—automatically releases and slides smoothly around the turnbuckle to a new grasping position when the handle is raised. *Aero Tool Company, Burbank, Calif.*

263

Special Cargo Scale—A special cargo scale combining the high capacity of 5,000 pounds with an exceptionally light weight of 185 pounds has been developed that can be carried aboard planes for use at poorly-equipped airports. Of compact design, castings made with heat-treated aluminum, two beams are provided on this scale, the lower of which is graduated by two pounds. The platform measures 24 x 36 inches. *The Howe Scale Company, Rutland, Vt.*

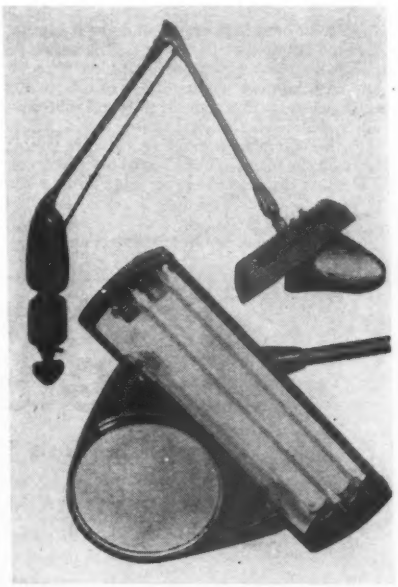
264

Vertical Drilling and Boring Machine—A machine for drilling 24 holes in two working stations in an extremely heavy gun part has been announced. The Standard Model No. 20 Vertical Drilling and Boring Machine, recently added, has been equipped with a 25-spindle drill head and a special 3-position, hydraulically actuated shuttle-index table, on which the part is loaded in a fixture. After being loaded in the

front position, the part is moved into the second position to have 20 holes of various diameters drilled. The part is then moved to the rear, or third position, where 4 more holes are drilled and 1 is reamed. The bushing plate on the drill head is equipped with a special coolant valve and partition to allow coolant to be directed either to the front or to the rear working position when machine is in operation. *LeMaire Tool & Manufacturing Co., Dearborn, Mich.*

265

Super Sight Fluorescent Lighting—Manufactured in-unit with the fluorescent lamp, this magnifying lens and light assembly are mounted on a balanced bracket that can be instantly placed in any position over a wide work area and is supplied in three types of lighting: 1. Standard



bayonet type of bulbs. 2. Lamps that are sealed to relieve the explosion hazard. 3. Fluorescent Lamps. It is also supplied with three types of brackets and two sizes of lenses to meet any industrial need. *The Boyer-Campbell Company, Detroit, Mich.*

266

Underwater Cutting and Welding Electrodes—Arc-oxygen under water cutting and welding electrodes are now commercially available and utilize the heating properties of an arc flame, ranging from 6,000 to 10,000 degrees Fahrenheit, for underwater kindling of steel plate and beams to the burning point. Into the molten steel thus produced, a jet of pure oxygen is produced to cut cleanly through the steel. Known as Murex type CW, the underwater welding electrode is supplied in 1/8" to 1/4" sizes. For general salvage operations the 3/16" size is by far the most widely used and is employed for welding plate from 1/8" to heavier thicknesses. Also can be used for cutting material up to 1/4" in thickness. *Metal and Thermit Corporation, New York.*

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267

Electronic Air Filtration Equipment—Electromist, a self-contained completely demountable electronic unit designed to collect oil mist from high speed cutting tools or welding fumes in light concentrations, has been recently introduced. An axial flow fan mounted on top of the unit draws air from the operation which is properly hooded through piping or flexible tubing into the base of the unit. In its application to cutting operations, the mist-laden air first passes through a permanent unit filter to remove any metallic dust or large drops of oil, then enters the ionizer in which the mist and smoke particles receive an electrical charge before passing into the collector unit where they are precipitated on the plates. The collected oil mist accumulates and drips off the lower edge of the plates, through the filter and into a reservoir below. As much as 2 or 3 gallons of oil can be salvaged daily and may be piped back into the machine tool or drained off as preferred. Made in one size—28¾" x 20¾" high. The power pack operates from nominal 115 volt 60 cycle single phase. *American Air Filter Co., Inc., Louisville, Ky.*

268

Davis Remote Head Gas Alarm—Filling the need for an instrument which will indicate the presence of combustible gases and vapors, visually and audibly indicating their approach to the dangerous limit before fire or explosion could take place, this Davis remote head gas alarm analyzes the gas and has a filament blow-out signal. A visual and audible signal will warn of the approach of a dangerous condition. *Davis Company, New York.*

269

Maintenex Cleanser—Developed by the laboratories of the A. C. Horn Company, Maintenex is a cleanser in powder form which dissolves instantly, producing a fluorescent color indicating the proportion to be used. Free of abrasives or fillers, it emulsifies dirt and soil rapidly so that it can be rinsed away without redeposit. *A. C. Horn Company, Long Island City, N.Y.*

270

Pickling Inhibitor—A controlled pickling inhibitor trademarked "Kelite Control" protects metal and saves acid by causing the pickling acid to work on the scale only. It prevents attack on healthy metal and reduces the possibility of hydrogen imbrittlement, and is packaged in 5 gallon cans and 15 and 55 gallon drums. *Kelite Products, Inc., Los Angeles, Calif.*

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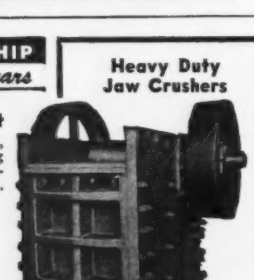

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YOURS FOR THE ASKING

1799

Gear Finishing Cutters—An illustrated booklet (Bulletin No. E-45) describing its specialized line of rotary and rack type gear finishing cutters, lamps, burnishers, and master checking gears, is announced. *Colonial Tool Co., Ltd., Windsor, Ontario.*

1800

About Los Angeles—*"Los Angeles, the Magic City and County,"* is the name of a booklet circulated by the research department of Los Angeles Chamber of Commerce. Tables and charts, showing population and school enrollment, bank debits, stock exchange transactions, assessed valuations and other statistics, run from 1910 or 1920 through 1944, depending upon availability of data. *Los Angeles Chamber of Commerce, Los Angeles, Calif.*

1801

Service Manual—As an aid to the efficient operation of hydraulic oil pumping equipment, a new service manual has just been issued giving complete directions for the maintenance of Kobe Triplex Pumps and Power Units. The service manual is divided into ten sections containing 37 pages of clearly written instructions illustrated with photographs. In addition, there are sixtee plates of engineering drawings along with parts lists for ready reference. *Kobe, Inc., Huntington Park, Calif.*

1802

Rotary Kiln Operation—Anyone concerned with the more efficient operation of rotary kilns, for the production of high-quality lime, cement or mineral ores, should be interested in Leeds & Northrup Company's new catalogue presenting their complete line of instruments for measuring or controlling various kiln temperatures, for automatically controlling draft, and for continuously measuring kiln speed. To illustrate how this equipment can be applied most effectively, the publication features a two-page schematic diagram of a typical kiln showing the various points to which instrumentation is being applied. The catalog also contains numerous pictures of the equipment in actual operation. *Leeds & Northrup Co., Philadelphia, Pa.*

1803

Calgon Data—"Calgon Data for the Textile Chemist," a new booklet that goes fully into the uses of Calgon in the textile industry, has just been issued. Calgon, a dehydrated phosphate glass made from food-grade phosphoric acid can be used in washing, scouring, bleaching and dying as well as specific applications in wool, silk, cotton, rayon and hosiery processing, as it does not increase the alkalinity of any soap solution and therefore can be used with less danger on the more delicate woolens and acetate fabrics. *Calgon, Inc., Pittsburgh, Pa.*

1804

Applications of Melamine—A 24-page illustrated booklet describing the many applications of the chemical melamine, in the plastics, textile, paper, leather, chemical, paint and allied industries, has been published by the American Cyanamid Company. Among the more important applications of melamine are its use in plastics of high arc resistance; in wet-strength paper; in the shrinkage control of wool; in making improved leather, and especially leathers which are white all the way through; in water repellents for fabrics; in improved enamels suited to mass production of automobiles and household appliances, and in the production of the chemical equivalent of distilled water. *American Cyanamid Company, New York, N.Y.*

1805

"Fifty Facts"—This interesting booklet just issued cites actual experiences in fifty manufacturing plants, showing how more than half the tools in common use can be made to work longer and better through the use of a new and better way of hardening soft steels, and supplementary treatment called "Ad-Life" for previously hardened, finished tools. Even brand new tools can be "Ad-Lifed," since no rehardening is required, there is no danger of fracture or distortion. Tools thus treated have been found to stand longer runs between grinds. *Perfection Tool & Metal Heat Treating Co., Chicago, Illinois.*

1806

Spray Booth Compound—This new bulletin gives a brief but adequate description of the operation of a new spray booth compound, "Traversite," a solution used wherever the water wash type of spray booth is in operation. This product prevents the accumulation of paint pigment on the walls, lines, and circulating system and effectively reduces fire hazard arising from the collection of pigments in the exhaust stacks. *The Penetone Company, Tenafly, New Jersey.*

1807

Precision Machined Bars—An envelope size folder is just published describing and showing in natural color precision machined bars made from a specially tough and strong bearing alloy, Shook 664 Phosphor bronze. The folder lists over 400 stock sizes of shook bored bronze bars to enable users to avoid material waste and conserve machining time. Listings are also given for solid machined bronze bars. *Shook Bronze Corporation, Lima, Ohio.*

1808

Self-Adjusting Toggle Clamps—New literature is now available from the Products Engineering Company covering their line of the following new and improved tools: Self-Adjusting Toggle Clamps, A.S.A. Drill Bushings, machinist tools and gages which include depth micrometers, surface gages, screw pitch gages, thickness gages, engineers' gages including wire, thickness and taper blades, dupli-gage for drill hole inspection and utility. Also compiled is a complete but simplified jig drill bushing conversion data chart. *Products Engineering Company, Beverly Hills, Calif.*

1809

Materials Handling Analysis Guide—A new 36-page pocket size booklet which discusses handling from an executive viewpoint is divided into three major sections: 1. "How to Tell if You Need Better Handling Methods;" 2. "Analyzing the Problem;" and 3. "Determining the Solution to Your Problem." 31 illustrations help to point out ways of improving handling methods. *Towmotor Corporation, Cleveland, Ohio.*

1810

Grease Lubrication—A four-page bulletin detailing construction, maintenance and lubrication recommendations for double-shielded ball, open ball, and spherical roller bearing types as installed on Reliance A.C. and D.C. Motors, V-S Drives and M-G sets is offered by the *Reliance Electric & Engineering Company, Cleveland, O.*

1811

Welding Positioner—Standard Machinery Company has put out a new catalog on their Standard Welding Positioner which is completely powered and easy to use. *Standard Machinery Co., Providence, R.I.*

1812

Floor Cleaner—A new illustrated 4-page folder of special interest to maintenance men and superintendents in commercial and industrial buildings describes Floorlife Cleaner and how it not only "lifts" dirt off the surfaces for easy speedy removal by wiping, but actually waxes as it cleans in one application. Also removes rubber heel marks. *Building Products Division, L. Sonneborn Sons, Inc., New York.*

1813

Vertical Turret Mills—A six-page, fully descriptive catalogue describes the Rogers "perfect 36" vertical turret mills for boring, drilling, and turning. *Rogers Machine Works, Inc., Buffalo, New York.*

1814

Ameripol D—A new edition of the catalog section on the properties of Ameripol D, an oil and heat resistant synthetic rubber developed for specialized applications has just been published. Properties of Ameripol D are outlined in detail, one of the features being a page table giving the property relation of natural and various types of synthetic rubber. Other tables list the properties of typical commercially available Ameripol D compounds, the percent volume increase after 48 hours immersion in oil of natural rubber and the various types of synthetic rubber, and a guide to determination where the use of Ameripol D is practical. *Public Relations Dept., The B. F. Goodrich Company, Akron, O.*

1815

Coated Abrasives—"Sanding and Finishing" is an 84-page book containing complete explanation of the new system for identifying coated abrasives by "Carborundum" and comprehensive recommendations for the use of coated abrasives in metalworking, woodworking, shoe and leather, floorsanding, printing, plastics, pipe and hat trades, specifications for belt sanding, belt splices and speeds. *The Carborundum Company, Niagara Falls, N. Y.*

1816

Electrical Contact Catalogue—A new 36-page catalogue just issued contains information and data for manufacturers of products utilizing contacts. In addition to describing all of the types of materials with extensive notes on the applications of each type, the catalogue gives data on such essential factors as variables in contact selection. *Stackpole Carbon Company, St. Marys, Pa.* (Catalog No. 12)

1817

Metal-Cutting Tools—A new 52-page catalog describes the high-production metal-cutting tools made from Haynes Steelite 98M2 and Star J-Metal alloys and includes descriptions, illustrations, engineering drawings, specifications and prices for standard tools manufactured by the company. Punched for binding and completely indexed for convenient reference. *Haynes Steelite Co., New York, N.Y.*

1818

Internal Pressure Chart for Round Steel Tubing—This diagram is designed to show a safe working pressure for round steel tubes, outside diameter up to 10″—wall thickness from .035″ to 1″—ultimate tensile strength of steel from 40,000 to 100,000 psi—safety factors from 2 to 6. The calculations were based on cold drawn, average wall steel tubing and the values of ultimate tensile strength were reduced by 10 per cent to compensate for a possible variation in wall thickness. An example is worked out on the chart, the arrows indicating the procedure to follow. *Baker Steel and Tube Co., Los Angeles, Calif.*

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INDEX TO ADVERTISERS THIS ISSUE

	Page
Acme Steel Company	85
Air Reduction Sales Co.	9
Aladdin Heating Co.	108
American Engineering Co.	35
Angier Sales Corporation	82
Anglo California Nat'l Bank	76
Asbestos Supply Companies	81
Baker Steel & Tube Co.	26
Bank of America	32
Bay Cities Asbestos	102
Brooks Equipment Company	87
Caine Steel Company	33
California Barrel Co., Ltd.	3rd Cover
California Spring Co., Inc.	80
Chain Belt Company	12
Cleveland Worm & Gear Co.	103
Coldwell, Banker & Company	97
Colson Equipment & Supply Co.	74
Commercial Iron Works	30
Consolidated Steel Co.	11
Conveyor Company, The	65
Crocker First Nat'l Bank	88
Detroit Hoist & Machine Co.	98
De Young Bros. Machinery Co.	104
Downs Crane & Hoist Company	102
Electrolift, Inc.	100
Engineering Products Company	78
Fairbanks Company, The	108
Food Machinery Corporation	104
Fruehauf Trailer Company	56-57
Garratt-Callahan Co. of Calif.	71
Gould Storage Battery Corp.	25
Gruendler Crusher & Pulverizer Co.	108
Haering, D. W., & Co., Inc.	104
Harnischfeger Corporation	20
Harper, H. M., Company	95
Harvey Machinery Co.	110
Hendy, Joshua, Iron Works	29
Horn, A. C., Company	34
Independent Pneumatic Tool Co.	38
Industrial Equipment Co.	16
Johnson Manufacturing Co.	101
Johnston, A. P., Company	88
Kelite Products, Inc.	98
Kingwell Bros., Ltd.	70
Lea Manufacturing Co., The	73
Linde Air Products Co., The	31
Maas, A. R., Chemical Co.	75
Maltby, Edward D., Company	71
Marine Engineering & Supply Co.	77
Marwood Limited	103
Mathews Conveyor Company	67
McCarty Company, The	18
Meyer, Wilson & Geo., Company	110
Moore Corporation	4
Muffler, Leroy A.	66
Newcomb Audio Products Co.	88
Oakite Products, Inc.	95
Osgood Company	61
Pacific National Bank	91
Paraffine Companies, Inc., The	99
Pioneer Rubber Company, The	108
Plant Rubber & Asbestos Works	24
Poulsen & Nardon, Inc.	37
Premier Oil & Lead Works	19
Punch-Lok Company	99
Rapids-Standard Company	100
Raymond, Albert, & Associates, Inc.	66
Redington, F. B., Company	110
Republic Supply Co. of Calif.	72
Revere Copper & Brass, Inc.	8
Ridge Tool Company	101
Roebling, John A., & Sons	69
Sales Analysis Institute	86
Saverite Engineering Company	90
Schnier, I. F., Company	84
Scientific Lubricants Co.	88
Service Caster & Truck Co.	96
Sharpe Manufacturing Company	97
Shell Oil Company	10
Signode Steel Strapping Co.	21
Smoot-Holman Company	68
Square "D" Company	23
Standard Oil Company	40
Stauffer Chemical Company	79
Stephens-Adamson Mfg. Co.	4th Cover
Stonhard Company	94
Stuart Oxygen Company	90
Sturtevant, B. F., Company	14
Sullivan Machinery Co.	15
Thaler Pipe & Supply Co.	66
Thomas Truck & Caster Co.	94
Tide Water Associated Oil Co.	27
Towmotor Corporation	6
Trimount Instrument Co.	71
Tubbs Cordage Company	96
Union Carbide & Carbon Corporation	31
Union Oil Company	17
United Autographic Register Co.	36
United States Steel Corporation	13
Vacuum Can Company	89
Victor Equipment Co.	2nd Cover
Warman Steel Casting Co.	63
Western Asbestos Company	3
Western Gear Works	7
Western Pipe & Steel Co.	105
White Motor Company	28
Worthington Pump & Machinery Corp.	97
Wrigley, Jr., William, Company	83

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